

Turning Traditions Upside Down

Rethinking
Giordano Bruno's
Enlightenment

Edited by

Henning Hufnagel *and* Anne Eusterschulte



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Preface

GIORDANO BRUNO: A non-conformist at the dawn of an epoch, a martyr of modernity, or just a polemic controvert? Descriptions of this kind fall short of grasping the multifold character of the Nolan. Deconstructing the relationship between God and the outside world gave distinction to his life—and his refusal to recant when facing the stake somehow set him apart from the world. Since then, the debate about the Nolan has been dominated by the interest in the comprehensive œuvre of the philosopher, and by attempts to make him a protagonist of the freedom of thought.

This volume brings together some of the most eminent researchers to have worked on Giordano Bruno and his epoch. Their contributions—inspired by a colloquium on Giordano Bruno organized by the Max Planck Institute for the History of Science and the Central European University in 2008—represent a critical inventory of our knowledge of the Nolan's life and work as well as shedding light on the many dimensions of Bruno's thinking. His radical rationality, starting with attempts to reinvent the roots of religion but ending with a break in the doctrines of trinity and monotheism; his natural philosophy, including the cosmology of the infinity of the universe and of the unlimited number of worlds, or his thinking on the vital character of all the objects on earth; his vision of a new cosmic order and his place in the Copernican revolution, breaking with the dominant heliocentric and anthropocentric system in a way more radical than any contemporary thinker had before; his scientific methods, his analogies, speculations, metaphors, his intuitive as well as practical knowledge, reflecting the epistemic practices of a revolutionary; his idiosyncratic blending of traditions, both philosophical and literary; his linguistic exuberance and conceptual boldness; the textual structures, genres, and forms of non-conformity Bruno continuously experimented with, from the treatise to comedy, from dialogue to poetry; and finally, his gusto for paradox and satirical panache. Attention has also to be given to Bruno's consideration of the role of philosophy in society—either as a way to give coherence to a world thrown off track, or simply as an instrument for civilizing

mankind. This leads us to the reflection and the reception of Bruno's intellectual fire. Bruno has been received in literature and art as well as in public spaces in a way that has been as versatile as the philosopher himself. The sculpture created by Berlin artist Alexander Polzin, entitled *Giordano Bruno*, is the subject of the final chapter of this volume. This artwork was originally commissioned by the Central European University in Budapest to celebrate George Soros's seventieth birthday and copies were erected in Budapest and Nola. On the occasion of our colloquium, the statue was also inaugurated at Potsdamer Platz in the center of Berlin. The statue depicts the vulnerable body of a philosopher who is turning the world upside-down and attempting to dislodge the borders of the universe—a fitting symbol of Bruno's tragedy, a man who dared to reconsider the fundamentals of the world as they had been passed down throughout the ages and who struggled to find his place in Europe. Yet, after peregrination across the continent, he ended up cast as a heretic in all three Christian churches of the occident. He is now honored in a place, at the centre of modern Europe, which also once served as the stage for the tragedy of a world divided.

We would like to conclude by thanking all the authors who contributed to this volume. Most of all, we would like to thank the editors, Henning Hufnagel and Anne Eusterschulte, for their substantial contributions and the great work they have achieved. We hope that this volume will help create a better understanding of a philosopher whose thinking is more prevalent today than any of his contemporaries might have foreseen.

Berlin and Budapest, September 2012

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Introduction

Turning traditions upside down—this metaphor seems to be a good starting point for rethinking Giordano Bruno’s philosophy and his provocative aspirations in the world of letters. It certainly would have been to Bruno’s liking; someone who, in his writings, often presented himself as a Mercurian, larger-than-life figure who has come to put things straight: the Nolan, enlightening his contemporaries about the misleading paths of traditional doctrines and opening minds for the discovery of true philosophy.

Born in 1548 near the town of Nola in the Kingdom of Naples, Giordano Bruno is known today as an exceptional, yet ambivalent figure within the history of ideas. As a great scholar, celebrated for his comprehensive erudition, famous for his emphatic defence of philosophical inquiry against religious doctrine and his rigid attacks against reputed authorities, he caused an intellectual stir wherever he went. Sometimes his interventions were received with great *éclat*; more often, however, they created academic scandal. Bruno impressed the French King Henri III who made him one of his “*lecteurs royaux*”; three years later, he had to leave Paris in tumultuous circumstances after a disputation had grown out of control. In the meantime, Bruno had upset the intellectual scene in Elizabethan England with his six Italian dialogues. Moving between different frontiers, confessional beliefs, philosophical schools, academic parties and institutional interests, Bruno—who did not mince matters—came under attack from many sides.

Bruno argued relentlessly for a replacement of the philosophical *koiné* of his time, the Scholastic Aristotelian philosophy that presented a view of man and cosmos, which Bruno had been dissatisfied with since his time in a Dominican convent in Naples. For his project of philosophical reform, Bruno draws on a large variety of sources: on Platonic, pre-Socratic, Pythagorean, and Hermetic ideas, on thinkers such as Plotinus, Averroes, Nicholas of Cusa, Raimundus Lullus and Ficino. He builds on the methodology, flourishing during the Renaissance, of mnemotechnics. And he uses all these

traditions in a highly original, idiosyncratic way. Inventively blending “ars lulliana” and “ars memoriae,” Bruno introduces combinatory elements into the art of memory and refines it into an epistemology which, at the same time, is an ontology. For he postulates the analogy of mind and world, being and thought—an analogy which he ultimately sees as a unity. This idea of unity leads to the concept of the metaphysical One, central to Bruno’s philosophy: a unity preceding all differences, prior even to the Aristotelian principles of form and matter, and therefore unintelligible, at least in any direct way, to a singular being like man. As the One is the origin of all realities and all possibilities, it is directly linked to the second concept central to Bruno: infinity. Infinity is the key concept in Bruno’s cosmology, discarding its Aristotelian-Ptolemaic predecessor, which was constructed in a closed and carefully graduated hierarchy of spheres around the Earth. Based on Copernicus’ heliocentric system, Bruno postulates an unlimited, infinite universe containing innumerable inhabited worlds, all made of the same matter, all of the same importance, and moving in a homogeneous space, following the same governing principle. However, not only does Bruno formulate the metaphysics of an infinite universe, he also reflects the anthropological consequences of such a cosmology; for it is clear that, in Bruno’s universe, there is no place for the idea of a personal creator god. Accordingly, he attempts to formulate a new ethics—an ethics that, propounding a metaphysically “heroic life,” simultaneously opens a way to approximate cognition of the One.

Right from the beginning, Bruno was an “*academico di nulla academia*,” an “academic of no academy,” as he calls himself in his comedy *Candlebearer*. Soon enough, he became not only institutionally, but literally homeless, wandering from Italy to France, to England, to Germany and back again over the Alps, watched by suspicious eyes because of his radical visions of intellectual reform. At last the prominent “universally learned man who did not, however, have any religion,” as one contemporary described him, fell victim to denunciation in Venice and, after a nearly eight-year-long trial, was condemned by the Roman inquisition to be burnt at the stake. The verdict was executed on the Campo de’ Fiori in Rome, on February 17, 1600. The stench of burnt flesh is said to have lingered for days.

The tragedy of Bruno’s life and thought may be seen as a radical symbol of the human struggle for knowledge, rising to the challenge of freedom of thought at the risk of losing ground. It is upside down, therefore, that Alexander Polzin’s sculpture shows Bruno.

In order to bring into focus the horizon and the dimensions of Bruno's transformation of traditions, to demonstrate how he turned contemporary thinking upside down, and to delineate his persuasive strategies, as well as the theoretical consequences of his thought, the contributions of this volume all start from a selected text, an exemplary passage drawn from Bruno's great range of work or from texts close to his person and *œuvre*. Presenting and elucidating pivotal points of the *philosophia nolana*, the essays both invite readers to become acquainted with Bruno's philosophy and provide them with innovative dissections, interpretations and conceptual reflections that will prepare the way for a revised reading of Bruno's works. They reconstruct Bruno's deconstruction and rearrangement of philosophical systems, his understanding of nature and the cosmos, his methods of thinking and writing, his aesthetic and literary categories. They explore the topics and *modi operandi* of the great Renaissance thinker and point out the variance of his reception up to the present, both inside and outside academia, exhibiting the ever-changing relevance and continuing fascination of Bruno's work.

The results of the contributor's investigations are presented in four sections, according to four main fields of research interest. The first section entitled *Epistemic Practices of a Revolutionary: Bruno's Methods and Thinking*, examines Bruno's methodological procedures. The essays show how the Nolan undermined traditional positions, by a subtle reflexion on epistemological principles, logical structures, or metaphysical presuppositions, to secure evidence for his philosophy of the infinite and its inherent consequences which revolutionized the fields of metaphysics and epistemology, physics, cosmology and anthropology. Bruno's method of appropriating and concatenating older philosophical concepts appears to be both a method of critical revision as well as systematic transformation.

Paul Richard Blum opens the volume with an epistemological reflection on default values, in reference to a passage from Bruno's Latin poem *De immenso*. While default settings are constitutive instruments of every cognitive process—they function as a sort of practical, temporary prejudice—Blum accentuates Bruno's request for an epistemic meta-operation. In his poem, Bruno reminds us to be conscious of the tentativeness of mental default values in the same way as children are aware of the fact that changing sights of one and the same object are related to their point of view. If the intellect fails to realize the infinity of the universe, it is not the fault of the visual sense, but of the unconsidered reliance on vision as an epistemic default value. Bruno advocates a change in the standard principles of thought.

This mental operation leads to facing up to a radically altered view of the world, resulting in the discovery of the philosophy of the infinite.

Covering Bruno's so-called Frankfurt Trilogy, Angelika Bönker-Vallon analyses Bruno's intention to demonstrate the systematic interrelation between metaphysical, mathematical and physical thought. In these three Latin poems, Bruno delineates a universal concept of science which embraces all branches of scientific knowledge. Within this tripartite encyclopaedia, *De triplici minimo et mensura* is of the utmost significance, as Bönker-Vallon points out, because in this work Bruno tries to conceptualize a mathematical theory for measuring the infinite cosmos or, in a comprehensive sense, to create a theoretical substructure of the encyclopaedic sciences. Based on the concept of a threefold minimum—i.e., God as the monad of monads, the mathematical point and the physical atom—Bruno demonstrates the metaphysical implications and qualities of point and atom as primary functional minima, redefined as first and elementary spatial structures comprising the coincidental relationship of maximum and minimum, essential for conceiving the relationship between the infinite space and its fundamental entities. The interconnection of metaphysical, mathematical and physical minima provides accessibility to the systematic nature of Bruno's threefold theory of the infinite, which based on the idea of a universal measure, allows for the development of the idea of universal science.

In his essay "...per speculum et in aenigmate...", Michele Ciliberto displays how "thinking through images" is the central point in Bruno's *nova philosophia*. It is the topic not only of his meditations on the *ars memoriae*, but is continuously discussed both in his Italian as well as in his later Latin works. For Bruno, the use of images is a condition preceding every act of thinking. This leads him to a new conceptualisation of the process of cognition: Images or mental phantastic figures are like an interface between mind and nature, between the logical, abstract operations and the innumerable appearances of the visible world. At the same time, the inexhaustible potency of fantasy to produce images makes us aware of the idea of infinity. In this context, the dialectic between fantasy and intellect, abstract synthesis and creative analysis is, as Ciliberto points out, vitally important: it shows the way of man's approximation to the eternal truth, an infinite *itinerarium*, i.e., a metaphysical movement of man who by descending into himself tries to know the One, a way which allows him to touch the divine cause indirectly "through the mirror and in enigma."

Following this, Anne Eusterschulte attempts to delineate Bruno's assimilation of heterogeneous elements of ancient philosophy and shows how,

by transforming traditions, he expounds a theory of a heroic philosophical life. The Platonic allegory of the soul living in a cave of intellectual blindness serves as a central symbol demonstrating the ignorance and philosophical narrowness of traditional as well as contemporary thought, which avoids looking at the truth through the “eyes of reason.” Following the antique model, Bruno takes the interconnection of natural philosophy, epistemology and moral philosophy as a starting point to criticize a false and delimited cosmology, to establish the theory of the infinite universe containing innumerable worlds and to reject a short-sighted interpretation of sensory perceptions as a basis for epistemic evidence. Referring to the philosophy of Epicurus and his poetical follower Lucretius, combined with neo-Platonic motifs of the soul’s ascent to the One, Bruno breaks through the limited caves of the physical and epistemological as well as the misinterpreted moral world. The self-awareness of the true philosophical existence, engaged in an infinite process of venture and vicissitude, opens the eyes to the manifestation of the One, which is the deepest ground inside the soul.

The second section of this volume is entitled *Experience and Vision of a New Cosmic Order: Giordano Bruno’s Natural Philosophy*. Here, central aspects of Bruno’s cosmology and his transformation of classical concepts of natural philosophy are explored. It focuses on problems of cosmic order and the conceptualization of infinity in a physical, mathematical, and metaphysical sense. Re-formulating traditional concepts of space and location, extensive and intensive infinity, motion and time, Bruno confronts us with a comprehensive transformation of philosophical and scientific thought.

Commenting the third chapter of *De immenso et innumerabilibus*, Miguel A. Granada elucidates how Bruno, after having presented the theological and anthropological impact of cosmic infinity, conceptualizes the structure of the infinite universe, embracing innumerable planetary systems. Referring to the Epicurean concept of a homogenous infinite universe, Bruno argues that in this infinite cosmic space there is no centre or periphery but only a relativity of positions. Due to this Epicurean homogeneity, there must be a similarity of structures in the whole universe. And for that reason, due to a specific point of view, every star can be seen as the centre of an orbicular system of surrounding planets. As Granada points out, Bruno is the first philosopher who postulates a plurality of “worlds” or planetary systems, affirming at the same time that there is one law of nature regulating all cosmic movements. He, therefore, goes beyond tradi-

tional restrictions—which are still binding Kepler, e.g.—and, in doing so, anticipates the cosmological reforms of the seventeenth-century as represented by Huygens or Newton.

Wolfgang Neuser presents an alternative interpretation of Bruno's theory of matter. Against the backdrop of the controversial medieval debates about atomism concerning the attributes or qualities of atoms, their corpuscular or essential substantiality, and the appreciation of them as distinct particles, Bruno develops an understanding of matter that merges the Aristotelian concept of substance with atomistic ideas and the Neo-Platonic concept of matter, according to which matter is filled with spirit. Bruno differentiates three manifestations of the metaphysical monad, i.e., the undivided, infinite *unum* that systematically underlies everything. These manifestations are the constituents of matter: *spiritus*, based on the neo-Platonic concept of a spiritual virtue inherent in all matter; *spatium*, or the structural explication of the indivisible, un-extended point, which emerges in a process of self-generation; and *atomus*, the smallest indivisible or the physical minimum. Spirit, space, and atom are the structural modes of the expansion of infinite unity. Based on this conceptualisation of matter, Neuser characterizes Bruno as a Renaissance philosopher who, at the end of the post-traditional stage in history, anticipates the subject-based foundation of knowledge, representative for thinkers from the Modern Age like Descartes, Spinoza or Leibniz.

Enrico Giannetto's chapter emphasizes no less than the astonishing fact that Giordano Bruno—notwithstanding the significant differences in theoretical premises—presents a theory of relativity of time and motion three hundred years before Poincaré and Einstein. While his non-mechanistic conception of nature was an obstacle in recognizing Bruno as a serious scientist, according to Giannetto, Bruno's importance within the history of theoretical physics is irrefutable. He argues that the relativity of time is one consequence of Bruno's concept of cosmic infinity, also entailing the relativity of the localisation of planets or stars and of their motion, rotation and orbits within a uniform space. Rejecting the Aristotelian assumption of a *primum mobile*, Bruno argues for the plurality of incommensurable times due to the infinity of uniform motions within the universe. Turning the Aristotelian doctrine upside down, Bruno regards (relative) motion as the measure of time.

Arcangelo Rossi, comparing the cosmological theories of Copernicus, Bruno, and Galilei, attests a striking correspondence between the Nolan and the Galilean doctrines. Like Giannetto, Rossi aims at restoring Bru-

no's position within the history of natural sciences. He presents him as a serious contemporary of Galilei. Although there are deep philosophical and methodological differences, both agree that Copernicus's heliocentric system is not just a mathematical hypothesis but an explanation of the real cosmic structures. Whereas Bruno's convictions are based on the study of ancient philosophy, the basis of Galilei's theories are innovative instrumental practices that allow him to make precise observations and calculations. Both share an anti-Aristotelian impetus, abolishing the distinction between supralunar and sublunar physics: Both attest there is but one homogeneous world, governed by one natural law. Finally, they analogously interpret the Scriptures regarding natural knowledge. In fact, Bruno literally anticipates the allegoric interpretation of the Scriptures later adopted by Galilei: The aim of the Bible and of religious dogma in general is social and moral discipline and not the description of natural truth.

The third section of this volume, *Forms of Non-Conformity: Bruno's Works as Literary Texts*, shifts the focus from Bruno's ideas to his texts. Bruno was a versatile, highly experimental writer, well-experienced in many genres and styles and familiar with numerous, especially heterodox and eccentric traditions. His disposition for polemics, satire and paradox, his linguistic inventiveness and scorn of literary decorum make his texts colourful and compelling reading. The essays presented here take a look at the literary aspect of Bruno's philosophy and examine how the form of Bruno's texts determines their meaning.

Nuccio Ordine takes on the tripartite structure of Bruno's comedy *Candelaio*, and asks why not only one, as in other plays, but three stock characters of Renaissance comedy are ridiculed here. He argues that the answer is to be found in the theory of the comic as set forth in Plato's *Philebus*. Here, Socrates identifies three basic situations of ridicule—situations perfectly embodied by the three protagonists of *Candelaio*. Thus, Ordine sheds light on the way Bruno works when writing his texts. Stressing the gnoseological function of the comic in Bruno's text, he finally indicates some central elements of Bruno's philosophy.

Sergius Koderá also examines *Candelaio* in his essay. He uncovers a line of political thought, an implicit commentary on important historical, political affairs, running throughout the whole comedy, leading up to Machiavelli. Although Bruno never even mentions the name of the philosopher-politician from Florence, Koderá detects the subterranean presence of Machiavelli in strategically important passages of *Candelaio*. He shows

how Bruno adapts the Machiavellian notions of *vicissitudo* and *occasione* and parallels Bruno's re-evaluation of the sense of touch with Machiavelli's ideas: For both authors, it is hands-on knowledge rather than detached vision that is conducive to true insight and acquisition of power. Whereas Bruno makes it clear that this re-evaluation involves heavy metaphysical implications, Machiavelli and Bruno do share common ground again in their vehement criticism of Christianity as harmful to the community.

This section concludes with Henning Hufnagel's analysis of Bruno's shortest dialogue, *Cabala del cavallo pegaseo*. Hufnagel focuses on the dialogue's twisted structure. *Cabala* is one of the most disputed of Bruno's texts and scholars have made many attempts to fix a positive theoretical meaning in the dialogue. Hufnagel shows that this is a hopeless fight because Bruno blends the dialogue with forms of paradoxical epideixis: Bruno piles up paradoxes until all claims negate and cancel each other. Hufnagel proposes *Cabala* should instead be read as a satire of knowledge. The transmission of alleged knowledge between the interlocutors collapses continually and Bruno lays bare their modes of argumentation. If anything is to be learned from *Cabala*, it is how the literary form of the dialogue can acquire the value of an argument. Thus, *Cabala* can be understood as a reflection on the dialectical possibilities of the dialogue as a genre.

In the fourth section in this volume, *Reflections of an Intellectual Burning: Bruno's Reception and Literary Afterlife*, the horizon widens both thematically and temporally. This section looks at some of the traces Bruno's life and work left in other philosophical, or even theological contexts, presents aspects of his sometimes curious literary afterlife—which extends to Bertolt Brecht and beyond—and tries to come to terms with the truly lasting fascination exerted by the man from Nola.

Wilhelm Schmidt-Biggemann explores the possibilities of picturing metaphysics by analysing a copper engraving in Heinrich Khunrath's *Amphitheatrum Sapientiae Aeternae*. In this image, the Kabbalistic foundation of all being, both the divine and the creatural, is symbolically depicted. For Bruno, the externalization of the first cause—which is in itself unknowable, because it only reveals itself in its expression—is, at the same time, the beginning of all spatiality. This idea corresponds materially to the imaging of the first cause, as it is represented in the Leipzig theosopher Khunrath's great work *Amphitheatrum Sapientiae Aeternae*. He goes beyond Bruno, however, when he problematizes the question of the symbolism of the divine externalizations.

As for Bruno's reception after his death—and after the ban on his writings—this is the focus of Ingrid Rowland's essay. Rowland displays how Giordano Bruno, surprisingly, continued to exert his influence in Catholic Europe, even in the midst of the Counter-Reformation: half a century after his death, his name appears in the work of the German-born Jesuit Athanasius Kircher, clearly unafraid to cite Giordano Bruno openly in his own publications. Rowland traces Bruno's subliminal presence in the writings of this polymath and polygraph, ranging from the structure of the universe to its small-scale composition and even to mnemonics. How did Kircher get hold of Bruno's books? Rowland explains that Jesuits had better access than most of their peers to controversial books, e.g., through a system of internal censorship. Drawing on documents from the archive of the Jesuit Order in Rome, Rowland is able to show that Kircher and his fellow Jesuits enjoyed remarkable freedom in philosophical inquiry as the censors aimed less at doctrinal purity and were more concerned that their writings could *superare mediocritatem*, were "exceeding the average."

François Quiviger tracks aspects of Bruno's afterlife in the twentieth-century from Paris to Rome, Hamburg and London. He starts with a musical drama about Bruno's life by a certain Charles Clair, a work that ironically brought about the excommunication of the author. Quiviger examines the image of Bruno in fiction and points out that in novels and dramas, Bruno often is presented as a Christ-like figure. He then follows the material history of Clair's book, acquired by Aby Warburg in 1929. In the last year before his death, Warburg was particularly interested in Bruno; he hoped that in Bruno's works he might find a link between pagan image-based thought and modern symbol-based thought. The material on Bruno that Warburg had collected but had not been able to exploit, eventually sustained the seminal research of Frances A. Yates at the Warburg Institute in London, although her perspective on the Nolan differed completely from Warburg's.

The last section of the book, *Visibility of the Invisible: About the Sculpture Giordano Bruno by Alexander Polzin* [2008], is dedicated to the statue of Giordano Bruno that was recently erected in Berlin. Besides a description of the statue and its pendants at Nola and Budapest made by the sculptor, Alexander Polzin, himself, the author Durs Grünbein gives a poet's interpretation of the statue at the moment of its unveiling at Potsdamer Platz. He construes the heretic as an emblematic figure of a young, independent Europe and asks himself why Berlin—a city which Bruno, this great traveller, has never been to—and, specifically, an underground station could be

the right place to commemorate the philosopher from Nola. For Grünbein, the statue is an iconographic alarm signal, visualizing a rhetoric of fire, the language of alchemy and metamorphoses that characterizes Bruno's thinking. Finally, Grünbein brings thinkers and poets together in a virtual conversation across time and space: Bruno, Nietzsche, Schopenhauer, and Czesław Miłosz.

Anything but virtual were the exchanges we—philosophers, historians, and literary scholars—had about Giordano Bruno in the congenial and inspiring atmosphere of the Max Planck Institute for the History of Science in Berlin, and our discussions and debates sowed many seeds. We are proud to see how they have matured and grown now into this volume. At the end of this project, we want to express our gratitude towards several individuals and institutions for their unflinching support, financial as well as moral and intellectual: Jürgen Renn and Yehuda Elkana, the Max Planck Institute for the History of Science, the Central European University, the Central European University Press, and, last but definitely not least, to Andreas Edel.

Finally, we would like to thank the students who assisted us in the completion of this volume with untiring effort, Fanny Neumann, Jussuf Spiegel, Charlotte Wetzel and, especially, Oliver Schumacher, who also translated Durs Grünbein's contribution.

Freiburg and Berlin, September 2012

HENNING HUFNAGEL,
ANNE EUSTERSCHULTE

PART 1

Epistemic Practices of a Revolutionary:
Bruno's Methods and Thinking

PAUL RICHARD BLUM
Giordano Bruno's Changing of
Default Positions

Ut Peripateticorum similiumque philosophantium sensus a principiis perinde se habeat atque puerorum: quos eodem instituendos ordine suscipimus, quo nos optima mater erudiit natura.

Sic [...] mons peramoene Cicadae,
[...] blandiri tua lumina sancta recordor.
Ut fueras hedera, et ramis redimitus olivae
Et corni, et lauri, et myrthi, rorisque marini,
Castanea circumcinctus, quercu, populo, ulmo,
Coniugio uviferae vitis felicibus, utque
Ruvida porrexit tenerae manui manus uvam,
Indice distincto dixi mihi: respice ad austrum,
Respice germanum mihi ab illa parte Vesevum.
Germanus meus, ille tibi quoque vult bene: credis?
Si te illuc mittam, nunc dic: vis ire? manebis
Cumque illo posthac. Vitreis tunc versus ocellis,
Prospectans formam informem, relegensque figuram
Furvi dumtaxat cumuli: dorso ille repando,
Dixi, ille incurvus dentato tergore, coelum
Contiguum findens? toto discrimine mundi
Hinc abstans, fumo turpisque umbrante, nec ullis
Muneribus pollens, nec enim sunt poma nec uvae,
Nec dulces illi ficus: caret arbore et hortis,
Obscurus, tetricus, tristis, trux, vilis, avarus.
At tu subridens: tamen est germanus amansque
Ille mei, atque tibi bene vult. Vise ergo, nec eius
Blanditias contemne, scio nihil ille molestum
Quod tibi sit, faciet, nolensque manere redibis.
Ergo ubi adesse datum est illic, propiusque tueri
Vesuvium Baccho celebrem, multoque superbum
Arbusto, ubertim e ramis pendentibus uvis,

Fructibus omnigenis, varia quos alma figura
Atque colore parens promit natura, benigno
Adspirans coelo patriae, nihilumque deesse
Illi, quas noram, rerum; proin pluria centum:
Attonitus novitate meos tunc arguo primum
Mendaces oculos. Dumque haereo, num mihi fors nunc
Imponat falsa specie, festivior ille
Germanus tuus, ille patrem Campania felix
Quem vocat, ingentis clypeo qui corporis, austri
Invisum avertit cara a regione rigorem;
[...] Sed alte
Arboreis gaudens opibus, inhiansque recepi
Auribus haec placido senior quae protulit ore.
Heic remane ergo, tuique lares contemne Cicadae,
Dives opum quam sim cernis, cultoque renidens
Aggere, quam pleno mihi gestit copia cornu.
Hinc oculos adverte tuos, spectato Cicadam,
Extremum tenet ille meus germanus, ut atro
Vertice contingit coelum, piceique coloris
Veste tegit fuscus artus, humilisque, pudensque,
Caerulea involvit miserum caligine corpus.
Tunc ego: talis eras et tu, tua ad arva priusquam
Venissem, similisque tibi spectabitur ille,
Praesentem cum me accipiet. Sic inde recedent
Et nebulae, et coelum, mundi mediumque redibit
Rursum illuc mecum, ut semper comitatus ab ipso
Accessi, mecumque ubicunque manente remansit.
Sic puerum docuere prius dubitare parentes,
Et veluti rerum faciem distantia mutet
Servatis rebus, sibi per totum alma et ubique
Naturae constet maiestas, nec meliora
Tam facile aut peiora putem distantia, quam sunt
Proxima, ut et tandem coelum nos esse, repertum
Sit mihi, quam sumus iis qui coelum sunt quoque nobis.
Telluris quacunque siem in regione, videbo
Esse mihi Occasum parili distantia et Ortum.
At quoniam hic, idem vultus mihi subvenit illic,
Cautior en sensus comprehendo conditionem,
Qui quoniam radios circum undique proiicit aequos,
Viribus atque aequis aequae contendit in omneis

Diffusus parteis, speciem sic ipse figurat:
 Nempe sibi hic finit spacium, non se spaciumque,
 Quo per se sine fine capit quocunque recedat.
 Non ideo visus mentitur, nam sibi quantum
 Possibile est aequis radiis monstrare, reportat;
 Et quocunque abeas, mensuram servat eandem.
 Defectus rationis erit, praesentia tantum
 Cunctarum quae sunt rerum momenta putare,
 Ut multi, astrorum tantum isthaec maxima credunt
 Quae prope sunt, stellas non maiore esse figura:
 Ut quoque Tellurem medium rerum esse putarunt,
 Cum tamen inveniam medium in toto omneque parte,
 Partibus ut cunctis pariter pars quaeque relata est.
 Ergo non certa finitur margine coelum [...].

De immenso et innumerabilibus, BOOK III, CHAPTER 1.¹

A default position is a very useful tool in cognition processes. This has been aptly pointed out by John R. Searle in his book *Mind, Language and Society: Philosophy in the Real World*.² The term is popular in computing, where software and hardware are usually preset to certain values that are most frequently and most likely to be used in data processing. For instance, *Times New Roman* is the default typeface of my word processing software. Default values, however, allow for deviation whenever other positions are required for a specific task. Flexibility is one virtue of default positions; another is its automatic return once the exceptional task has been accomplished. However, the return to the default position may prove a disadvantage, if the exception is supposed to become the rule (in our example: if I want *Courier* to be my default typeface). In this case the user of the application has to perform a meta-operation, i.e., he has to change his tools instead of just using them.

In epistemology, default positions are such that cognition can rely upon them, may change them temporarily if the object of cognition requires it, and again may fall back on them in the next cognitive process. Default positions are prejudices without a negative ring. Prejudices in the negative sense preclude their own change. Just as default positions are used in hardware and software, so too are they employed in everyday mental and behavioral processes. For instance, Catholics go to church on Sunday motivated by custom and command, but also using the technology of driving a car; then they pray to God relying upon the default position of

Platonism, which allows the elevation of the soul to the transcendent; they also go to communion, which relies on Aristotelian substance/accident physics as its default doctrine; and, after church, the same Catholics go home to enjoy the holiday as hedonists. During this comparatively simple set of actions, the agents apply quite a number of default positions, which are more contradictory than a mismatch of typefaces in a computer generated script. They start to function automatically with the performance and switch to another default the moment another performance is required. Even the very switching between perspectives is part of the default pattern of people as described. Of course, we may trust that those Catholics are able to justify and defend any single one of their actions and even the ensemble of those mixed default habits. The point is that without default positions or with only a restricted number of those positions they would get nowhere. (It may well be that martyrs or fanatics are people suffering from default position restrictions.) The real problem is to determine default positions and to decide when and under which conditions they not only are able to be changed, but have to be repositioned. This requires a meta-operation that, by definition, exceeds and goes beyond the standard. This is what Bruno is describing in his autobiographical reference to justify his new philosophy of the infinite worlds.

Bruno's charming childhood memories open with literary motives of *locus amoenus* and Nature capable of speech. Mountains appear personified and exude emotions. All this is written reassuringly – and relying upon the readers' expectations – with the obvious purpose of catching the reader by surprise when the first-person narrator draws the conclusion, still in the style of a narration, that the appearance presupposes the identity of the observer:

And the sky and the centre of the world will return
Thither with me: Just as I was always accompanied by it
While coming, so will it stay with me wherever I stay.

This conclusion is a new default the philosopher wants to install. Young Bruno hiked around while taking 'here' and 'there' for granted; the notion of 'my mountain' was his default position that is about to change. In the process of discovering that any mountain could be his geographical default position he is forced to tinker with his worldview and to refer to himself as the conglomerate of hardware and software that needs to be adjusted. There is no need to interpret line-by-line the rest of the narrative, exactly because the intention of the story is to show that a radical change of the

default values about the world and epistemology is required. The outcome of the alleged childhood experience is: "Consequently the sky is not limited by a definite margin."

Bruno disabuses his readers of the epistemological innocence of children, for it turns out that children become ingrained with standard assumptions about the world, but that also means it could just as well be otherwise. Default positions are practical, not true. Bruno also shows that consciousness arises from interaction with experience evidencing the triggers and switches of understanding. Eventually he proves that awareness of default positions changes them at least by turning them from prejudices into temporary assumptions. Cognitive default positions are practical tools for understanding the world, and changing them in turn changes the world.

BIBLIOGRAPHY

Primary Source

Bruno, G. *Jordani Bruni Nolani Opera latine conscripta*. Vol. I, 1. Ed. F. Fiorentino. Naples: Morano, 1879. Reprint, Stuttgart/Bad Cannstatt: Frommann, 1962.

Secondary Source

Searle, J. R. *Mind, Language and Society: Philosophy in the Real World*. New York: Basic Books, 1998.

NOTES

- 1 It is the intention of the Aristotelians and similar philosophers, as well as that of children, to start from principles; therefore I intend to teach in the same order in which Nature, the best of mothers, has educated us. // I remember that you Cicala, most charming hill, / [...] glared with your holy light. / As you were adorned with ivy and olive branches, / With laurel, myrtles, and rosemary, / Surrounded with chestnuts, oaks, poplars, and elms, / And embraced by happy vines, so that / The vigorous hand offered grapes to the small hand, / You, stretching out your index finger, told me, "Look to the South, / Watch the Vesuvius, who is similar to me, there. / He is my brother and also benevolent to you; do you believe me? / If I send you there, tell me, will you go? You will stay / With him eventually." I turned my clear eyes / And stared at the shapeless figure; I only discerned / The shape of an ugly mound and said, "With his stretched back and / Concave ridged spine grating the sky? A world / Away from here, producing shadowy smoke and dirt, he has nothing / To offer, neither apples nor grapes, / Nor figs; he lacks trees and gardens and is / Obscure, mean, sad, ferocious, villainous, greedy." / Smiling, you replied, "Nevertheless he is my brother and friend; / He is benevolent to me and to you, as well. So, explore: / And don't despise his charm; I am sure he won't annoy you at all, / You will return with the intention not to stay." / I arrived there and took a closer look /

At Vesuvius, famous to Bacchus, with his many / Vineyards, abundant with grapes hanging on the branches, / With fruits of all kind produced by benign / Multiform and multicoloured Nature. / I observed that under the benign sky of my homeland nothing was missing / From him what I knew of; rather, there was hundred times more. / Struck by the novelty, I first blamed / My deceiving eyes: "As I ponder it, maybe now / Your splendid brother shows me a false image, he whom Happy Campania / Calls her Father and who with the shield of his huge body / Keeps away hated roughness from the beloved region.[...]" / While I enjoyed the richness of the trees, I listened with open ears / To what the Old mountain said. / "Rest here, and disregard the old demons of Cicala, / Look how wealthy I am, situated on a cultivated bulwark, / And how full my horn is. / From here turn your eyes to Cicala; / My brother is the opposite of me: he touches the sky / With his black peak and covers his misty veins / With pitch-black colour; humbly and shamefully he / Clothes his miserable body in dark blue." / I replied, "You were alike before I joined your / Valleys, and similar to you he will appear / When he receives me. Then the fog will vanish / And the sky and the centre of the world will return / Thither with me: Just as I was always accompanied by it / While coming, so will it stay with me wherever I stay." / Thus the parents taught the child to doubt first; / And while distance changes the surface of / Things that remain, the motherly ubiquitous majesty of Nature is constant. / I discovered that neither better nor worse is that which is distant or close, / And that we are the sky for those who are the sky for us. / In whatever area of the earth I dwell, I see / That West and East are of equal distance. / But, since the same view appeared to me here and there, / I understand more cautiously the conditions of the visual sense, / Which projects equal rays anywhere / And aims equally with equal powers everywhere as it shapes its images: / That is, the sense limits its space, and not space the sense, / Which it contains without end wherever it goes. / Hence, it is not the visual sense that deceives, as it reports / As much as possible with equal rays, / And wherever you go, it keeps the same measure. / It must be a weakness of reason to believe in the meaning / Only of things which are present. / In the same way, many believe that only those planets are huge / That are close, and that the fixed stars are not bigger. / They also hold that the Earth is the centre of things, / While I find that the centre is in the totality and in any part, / And that any part is related to any other part. / Consequently the sky is not limited by a definite margin." Bruno, *Opera latine conscripta* I, 1, 313–16 (Translation is mine).

2 Searle, *Mind*, 9 sqq.

ANGELIKA BÖNKER-VALLON
The Measurement of the Immeasurable
Divine Mind and Mathematical Structures
in Giordano Bruno's
De triplici minimo et mensura

Mens super omnia Deus est. Mens insita omnibus natura. Mens omnia pervadens ratio. Deus dictat et ordinat. Natura exequitur atque facit. Ratio contemplatur et discurrit. Deus est monas omnium numerorum fons, simplicitas omnis magnitudinis et compositionis substantia, et excellentia super omne momentum, innumerabile, immensum. Natura est numerus numerabilis, magnitudo mensurabilis, momentum attingibile. Ratio est numerus numerans, magnitudo mensurans, momentum aestimans.

Influit Deus per Naturam in rationem. Ratio attollitur per naturam in Deum. Deus est amor, efficiens, claritas, lux. Natura est amabile, obiectum, ignis et ardor. Ratio est amans, subiectum quoddam, quod a natura accenditur et a Deo illuminatur.

De triplici minimo et mensura, CHAPTER 1.¹

THE FRANKFURT TRILOGY AS AN ENCYCLOPEDIA
CONCEPT OF SCIENCE

“A threefold gift produced out of the coffer of my poverty is offered here to you, thrice noble prince.”² With these deferential words, Giordano Bruno dedicated his late Latin work, the so-called *Frankfurt Trilogy* published in 1591, to the Duke Heinrich Julius of Braunschweig and Lüneburg. At first glance, this may look like a rhetorically pleasing dedication to present a book consisting of three parts to a patron ‘trebly praised.’ However, when the reader follows up the explanation, it becomes clear that Bruno’s offer (his “poor threefold gift”), in its way, is unusually generous; for the *Frankfurt Trilogy* tries to be nothing less than a universal concept of science for the purpose of presenting complete scientific knowledge in a systematic and well-ordered way.

In fact, according to Bruno's own words, the three parts of the *Frankfurt Trilogy* entitled *De triplici minimo et mensura*, *De monade, numero et figura* and *De immenso et innumerabilibus* form an encyclopedia in which mathematical, metaphysical and physical thought are functionally related to each other.³ Mathematics, metaphysics, and the natural philosophy of physics and cosmology are the components of a network of sciences that serves to articulate whatever may be knowable and, furthermore, to guarantee the inner unity and consistency of the diverse contents of knowledge. As in earlier Brunian writings, the main emphasis is put on the idea that the universe is infinite and that the number of worlds it contains is uncountable.⁴

Three aspects, however, of the intended encyclopedic method are noticeable which are characteristic of Giordano Bruno's late work (all of them epistemologically and with respect to its content). Firstly, epistemologically speaking, the encyclopedic approach shows that every scientific statement—whether it refers to mathematics or metaphysics or physics—can be nothing but a partial, incomplete statement that gives information from one particular perspective. Secondly, mathematics is also conceived in a threefold way and therefore reflects—as a part of a superordinate system of sciences—the encyclopedic structure of the whole. For that reason, it does not cause astonishment that mathematics are not reduced to 'typical mathematical objects' like numbers or space to dealing with arithmetical or geometrical problems in an 'abstract way.' Corresponding to the encyclopedic conception, mathematical thought is rather capable of focusing on metaphysical and physical structures, as well as describing the diverse objects of nature with the aid of suitable methods. Therefore, every mathematical statement signifies nothing more than one possible perspective on the being in the universe. The possibilities of interpretation extend from the maximal complexity of being to the single entities as well, so that depending on the respective type of problem the infinite totality of the universe, the inner order of nature, or spatial constructions of changeable material things can be picked out as a central theme. Thirdly, with regard to its content, the encyclopedic approach reveals that the scientific program of the *Frankfurt Trilogy* tries to resolve a nearly insoluble problem. If we take it seriously that all the parts of the trilogy should refer to each other, then the first part entitled *De triplici minimo et mensura* tries to present a mathematical theory of measuring the infinite cosmos, whereas the third part entitled *De immenso et innumerabilibus* declares the cosmos to be immeasurable.

In this sense, the trilogy as a whole is organized around a paradox, which is included in Bruno's reflection on the infinite universe from the beginning, but here becomes obvious in its far-reaching implications. The task which Bruno sets himself means nothing less than making comprehensible the incomprehensible infinity of the cosmos by mathematical reasoning without relinquishing the idea that the cosmos is incomprehensible. Thus, when in the following I try to discuss certain aspects of the mathematical speculation offered by the text *De triplici minimo et mensura*, this must be done in the knowledge that every scientific discovery or result is nothing but the beginning of the course it takes through all the other scientific disciplines, and that it is this awareness of the limited competence of all scientific thought which gives it its real meaning.

NATURE AS INFINITE CONTEXT OF BEING

The relationship between Divine Mind, nature, and rational cognition as basis of natural philosophy

Bruno's conception of God is constitutive for the understanding of nature. In order to explain the structures of natural philosophy and the epistemological possibilities involved, Bruno refers to the diverse names of God.

As 'monad of the monads,' God is the principle of unity and being,⁵ and as 'mind,' God is the principle of measure and form.⁶ Furthermore, the 'monad' is the absolute identity of unity and entity; or, in other words, unity and identity are convertible. God reveals the convertibility of these two qualities through the manifestation of his name: "I am what is."⁷ In this sense God is everything, being simply the perfect One. Whatever exists gets its being from the absolute unity and nothing can exist independently from the divine power.⁸ The mathematical relationship between God and human intelligence can be explained against this metaphysical background. Characterized as 'source of number,' as 'simplicity of every magnitude,' and as 'substance of every composition,' the divine unity represents the fundamental and transcendent reason for the ontological and mathematical orders of being. Being the immanent reason of everything, however, the divine mind causes the existence and mathematical structure of nature as 'countable number' and 'measurable magnitude.' These structures can be understood by the rational intelligence of the human being as an 'enumerating number' and a 'measuring magnitude.'⁹ The rational cognition of the human being, therefore, does not mean anything else but the capability of

counting and measuring to understand the mathematical presence of the divine mind in nature by the help of these intellectual means.

Thus, with the reflection on the threefold interrelation between God, nature, and rational cognition, Bruno marks the starting point of the development of the encyclopedic functions of mathematics. The mathematical operations of the counting and measuring human being are not superficial fictions ‘fixed from outside’ on the structures of nature, but the adequate epistemological methods to understand the inner complexity of reality caused by the infinite divine mind.

The “threefold minimum” as connection of metaphysics, mathematics, and physics

After having introduced the relationship between God, nature, and rational cognition as the basic frame of his speculation on natural philosophy, Bruno tries to develop the systematical coherence of ontology, mathematics, and physics. In this context, the concept of the ‘minimum’ which has a threefold meaning that includes ‘monad of the monads,’ ‘point,’ and ‘atom’—all aspects of metaphysics, mathematics, and physics—is essential.¹⁰ Unifying all opposites in a coincidental manner, God himself guarantees the existence and the unity of all subordinated forms of being, beginning from the infinite universe to the points and atoms as well.

Firstly, the divine monad manifests its inner coincidental characteristics as the ‘indifference of the dimensions’ of the infinite universe.¹¹ From this, it is clear that the foundation of the mathematical structure of the infinite is a result of the revelation of the first metaphysical principle. Inspired by Nicolaus Cusanus’s mathematical speculation on the coincidence of opposites in the infinite,¹² Bruno clarifies the quantitative and qualitative principles of the universe using the metaphorical picture of the ‘infinite sphere.’ Characterized as ‘work around’ of the non-imaginable properties of the universe, the ‘infinite sphere’ is neither to be understood as mere extension nor, in a finite way, as a sphere having a center and a limiting periphery. The universe can only be understood as an ‘infinite sphere’—that is, a sphere which has no quantitative boundaries, but nevertheless shows all essential qualities of the spherical figuration. Thus, due to the ‘spherical structure’ of the infinite, it is not only the possible idea of the homogeneity of space that can be deduced, insofar as the dimensions of length, width, and depth can be changed without any difference. Because of the lack of a limiting periphery and a special center assigned to it, it is also possible to interpret any place “within” the infinite sphere as a possible center. In this sense, the universe is nothing but the infinite unity and homo-

geneous totality of all centers without any distinguished place or spatial direction.¹³

Secondly, the divine monad unfolds its coincidental structure in the form of a dialectic relationship between infinite space, as the maximum of magnitude, and the spatial elements, as the minima of magnitude. In this context, it is necessary to see that this relationship can be interpreted in a two-dimensional or three-dimensional way. In the first case, it is the interrelation between the infinite circle and the point that comes to the fore. Every point can be regarded a potential center of the infinite circle, possessing the same dimensional characteristics as the infinite circle, which distinguishes itself by unlimited length and breadth. In the second case, the analogous correlation between the infinite spherical space and the geometrical form of the physical atoms is emphasized. Thus, every atom can be interpreted as a potential three-dimensional center of the infinite sphere, characterized by the indifference of unlimited length and breath and depth.¹⁴

In the light of these ideas, the specific characteristics of the mathematical structures of nature and of Bruno's mathematics can be seen. On the basis of the radically new conditions regarding infinite and homogeneous space, it is necessary to make understood the elementary spatial entities—i.e., point and atom—as the minima of that space. Qualified as the first spatial structures which are included in the coincidence of maximum and minimum, the minima never exist independently from the infinite maximum, but only united with the infinite or in relation to infinite.¹⁵ Thus, looking at the metaphysical preconditions, Bruno's speaking of 'minima' does not intend to establish finite mathematical or atomic theories. The aim of the argumentation is rather to establish a relationship between infinite space and its fundamental elements, which, as minima, express the same properties as the actual and infinite maximum. As for their quantity, the minima are to be comprehended as non-extensive points and atomic units; as for their quality, they represent the smallest circles or spheres.¹⁶ In this sense, Bruno creates a type of mathematics and physics based on the qualitative preconditions of the infinite.

THE MATHEMATICAL STRUCTURES OF NATURE

*Infinite continuum of space, first elements in space,
and the concept of limits*

The coincidental relationship between infinite space as maximum and the minima elaborated by Bruno provokes further questions about the mathematical construction of nature.¹⁷ Thus, on one hand, infinite space is un-

derstood as an infinite unity¹⁸ and as a spatial continuum,¹⁹ which does not consist of discrete elements. On the other hand, however, Bruno has to explain how to fix minima in a continuum and to avoid the problem of the smallest elements being identified with the infinite, or being absorbed by homogeneous spatial structures. In this sense, Bruno has to resolve a double problem: he has to insist on the separate—i.e., discrete character—of the spatial minima and, at the same time, to defend the idea of the infinite unity of space.

In order to carry out his theory, Bruno proceeds in several steps and, first of all, enlarges the idea of the coincidence between the opposites. The coincidental relationship between minimum and maximum is not exclusively interpreted as the identity of both components, but also in the sense that either extreme is contained within the other. According to Bruno, the “minimum continues to exist in the maximum” and, vice versa, the “maximum in the minimum”²⁰ forming an “infinite loop,” so that each opposite turns into the other. As a result of this, the coincidental relationship and perfectly equal structure of the opposite is indicated. Additionally, it is possible to look at both the minimum and the maximum in an independent way.

Nevertheless, we must add that this modification of the idea of the coincidence is not yet sufficient to differentiate the minima clearly from infinite space, so that they can be understood as elementary building blocks suitable for the construction of particular spatial objects. For this reason, Bruno makes use of the incomplete definition of the concept of ‘minimum,’ ascribing further meanings to it. Whereas, up to this point in the argumentation, Bruno interpreted the geometrical and physical minima as punctual and atomistic unities representing in themselves the quantitative and qualitative aspects of infinite dimensionality in an absolute and indifferent way; within the context of constructing finite spatial forms, he understands the minima as the ‘first parts’ in the infinite space. Unlike the absolute minima, these minima are always given together with an ‘indivisible limit’ because of their constitution as ‘parts.’²¹

With these supplementary conditions on the concept of minimum, Bruno has introduced all aspects necessary not only to differentiate fundamentally indifferent space, but also to make understandable the function of the minima as the first elements in the construction of extensive spatial forms. Corresponding to the last definition, points and atoms are described as a combination of both extensive unities and spatial limits which represent the dimensional principles of infinite space in a finite way. Furthermore, interpreted as ‘mobile’ and ‘multiplicative’ elements, the minima mark the

origin of the concrete dimensional figurations spanning the one-, two- and three-dimensional spatial areas by diverse processes such as ‘continuation,’ ‘multiplication,’ or ‘flowing.’²² In this sense, objects such as lines and planes and bodies are nothing but external dimensional manifestations of the internal dimensional tendency of the minima.²³

As for the relationship between the continuum and the discrete, the introduction of the minima as the first parts does result in the decomposition of space into finite units, so that conversely the composition of the minima would transform the spatial continuum into an atomic aggregate. The minima show rather the outcome of a process to make the infinite finite. This is carried out by a limiting operation, so the first parts never indicate absolute units, but relative units of spatial forms.²⁴ Therefore, they can only be understood as limited representatives of the preceding totality of the infinite.

Dynamic atomism and the economic principle of nature

The relationship between infinite space and atomic matter can be described against the background of the diverse meanings of ‘minimum.’ Bruno’s reflection starts with the dialectic relationship between infinity and finiteness as given by the structure of the infinite sphere. Just as the infinite sphere spans from any center in indifferent and homogeneous dimensions, the finite sphere likewise spans the dimensions from one center. For that reason, the finite and circumscribed sphere can be regarded as the particular formation, which makes the non-perceptible characteristics of the infinite perceptible. Furthermore, the spherical structure, being interpreted as the most simple of three-dimensional figurations, represents the figurative archetype of the atomic minima. Thus, the geometrical interpretation of matter is completed.²⁵ In consequence, all possible compositions of atomic aggregates can be explained on the basis of these fundamental conditions.

Within the framework of these reflections, Bruno extends his atomic theory—mathematically conceived up to this point—into a dynamical atomism, so that the physical conditions for the emergence of the atomic compositions are also guaranteed. In this sense, the indivisible centers of the spherical space are interpreted as force centers, able to expand and to contract. First of all, the centers develop themselves into two-dimensional circles; then second, continuing the process of spatial expansion, they build up the formation of three-dimensional spheres.²⁶ When this dynamic process is repeated from several centers, an ‘economical principle’ of nature

comes into force, filling out the space with the maximal number of atoms corresponding to the ‘principle of the densest packing.’²⁷ In order to clarify this, Bruno refers to the archetypical picture of the circle, demonstrating that a circle can be surrounded at most by a maximum of six equal circles and that every further and optimal enlargement of the composition with additional circles has to follow the same principle.²⁸ Thus, at least corresponding to the implications of Bruno’s text, a mathematical formula of the dynamic construction of the atomic matter is given which describes the increase and the decrease of atomic aggregates on the basis of a universal principle of order.

MATHEMATICS AS AN “ENCYCLOPEDIC” SCIENCE OF NATURE: THREE PERSPECTIVES ON THE MEASURE OF THE UNIVERSE

The universe as totality of mathematical relations

The conception of the threefold minimum for Bruno includes the possibility of developing the idea of a universal science, which includes all the necessary conditions for a complete theory of measurement. In this context, the intention is to establish a universal measure valid for the entire cosmos without any differentiation.

To carry out his program, Bruno refers to the relationship between minimum and maximum. The universe is regarded as the greatest possible totality containing the indivisible minimum as the common measure of everything.²⁹ Thus, the minimum and the maximum form two extremes of one universal system of relations, so everything is comprised of the minimum and related to the maximum—i.e., to the universe itself.

Additionally, however, Bruno understands the minimum as the coincidence of curvilinear and straight lines. In consequence, the minimum not only includes the principles of all spatial figures, but also guarantees a possible relationship between the two opposite principles of spatial figuration being their identical origin.³⁰ On the basis of these considerations and, moreover, occasionally referring to the methods of Archimedes,³¹ Bruno attempts to correct the traditional understanding of mathematics. Geometrical magnitudes which, according to the Platonic and Aristotelian tradition, are meant to be incomparable and hence also incommensurable, are, from Bruno’s point of view, to be interpreted as commensurable magnitudes with the aid of the indivisible and absolute minimum.³²

*The indivisible minimum as an ideal measure for everything
and as a principle of material order*

After having reoriented the fundamental direction of mathematics towards the coincidental and relational conditions of the universe, in the next step, it was necessary to fix a universal measure applicable to the concrete spatial forms. In this context, Bruno starts from an ideal model of circular minima which fill the space in an optimal way.

It has been stressed so far that six equal minima ‘circularly’ arranged about one minimum in the middle represent the ‘densest packing.’ This idea can now be further specified in order to establish the theory of measurement. Thus, the common measure, responsible for optimal distances in the arrangement of matter, is the radius of the circular minima. In addition to this, the radius can be interpreted as the side of a regular hexagon, which results when the centers of the surrounding minima are connected. In this sense, the atomic aggregates are not arbitrary accumulations, but optimal atomic constructions. They follow the formation of the regular hexagon, as this is the fundamental structure for the whole material area.³³ Every atomic being in the universe and filling it concretely has its place in a system of other atoms measured in the same way by the radius, as the ‘organic measure’ of the universe.³⁴ As a result, it obeys the same optimizing and economical principle of nature.

Discrete mathematics as a description of changeable physical matter

Bruno’s elaboration of the mathematical structures of nature does not stop at ideal principles for the best order of material formations. Taking a further step, Bruno looks at matter in perpetual motion and tries to describe its physical characteristics mathematically. In this context, the ontological and gnoseological conditions for the description of the objects change. The absolute conditions of mathematical identity and equality guarantee the connection between form and measure for the whole universe *only* in an idealized and archetypical way. Yet, one of the remarkable features of physical entities is their respective uniqueness, caused by continuous alteration of atomic matter.³⁵ Hence, Bruno concludes that it is not possible to find two absolutely equal formations, processes, or measures in the whole of nature.

In the light of this description of material qualities, further consequences for mathematical interpretation can be explained. On the one hand, it has to be assumed that the postulate of a mathematical description based on equality and exactness cannot be fulfilled for physical things in

nature which cannot be defined universally purely on account of their permanent alteration.³⁶ On the other hand, this does not mean giving up all hope of mathematizing nature. Rather, in this context, a mathematical method has to be developed which corresponds to the peculiarities of singular material entities and, in addition, which is able to represent these entities without being based on the ideal conditions of universal equality. To carry out this program, Bruno refers to the special mathematical field of so-called discrete mathematics. The discrete character of natural numbers—characterizing two numbers only in the sense of being ‘greater than’ or ‘less than’ without any ‘interim value’—is applied to the atomic matter and, at the same time, combined with the qualities of the spherical minima. In this sense, from a mathematical viewpoint, the physical matter has to be understood as a universe of discourse where the objects, in principle, can only reach discrete values.

As a result of these considerations, several types of problems can be formulated which are to be resolved by the means of ‘discrete mathematics.’ One problem Bruno is especially interested in concerns the question of how fundamental formations of material aggregations can be produced by means of minima that touch, as well as how many minima are necessary to enlarge the diverse formations without changing their original form. To answer this question, Bruno pursues the idea of an ‘atomic construction’ of geometrical configurations to create, so to speak, a model “to simulate” the process of aggregation in material atoms. Therefore, when a triangle is formed by three equal circles, which touch, and, in the same way, a square by four circles or a circle by six circles, then, for the enlargement of an equally formed triangle, three further minima (for the square, five minima; and for the hexagon, twelve minima) are needed.³⁷ After having generalized these considerations about the progression of numbers, in his next step, Bruno arrives at the (erroneous) conclusion that every formation increases according to a specific sequence of polygonal numbers only valid for this particular formation and not for another.³⁸ In this sense, Bruno tries to describe the material alterations in nature with the aid of sequences based on the idea of an arithmetically interpreted theory of configuration. The constantly given inequality by which the physical matter is characterized, in contrast to the ideal structures of mathematics, is expressed by the inequality of the numbers, so no rectilinear figure can be transformed into another.³⁹

Certainly, what must be added is that the incomparability of composed geometrical figures emphasized in this context is merely focused on one aspect within the complex process of the mathematizing nature, which

tries to describe the individuality of changeable material things on the basis of an assumed analogy between the fundamental geometrical formations and natural numbers.⁴⁰ In this sense, the qualities of natural numbers make clear the explicative aspect of the divine monad's activity—an activity, however, whose particulate character can only be recognized by a simultaneous encapsulation of the complicated structures of an ideal and universal theory of measurement, also based on the concept of God as the perfect One.

CONCLUSION

After these considerations, the “encyclopedic” character of Bruno’s mathematics can be better appreciated. The reflection starts with the infinite divine Monad. As the absolute identity of minimum and maximum, as well as the principle of measurement and number, the Divine Mind unifies the whole context of being in Himself. The supreme principle manifests its essence in nature as the unity of the mathematical and physical conditions of being. In this sense, every being which exists in nature is structured according to several interrelated perspectives. Hence, every being metaphysically originates from the infinite unity and is, in this respect, nothing but the infinite unity. As component of the infinite totality of the universe, it is determined by the coincidental identity of the principles of configuration. In the context of the unfolding activity of nature, it is part of a geometrical order organizing and measuring the extension of space by means of archetypical configurations. Finally, in the capacity of a finite individual, it follows arithmetical regulations; and, in doing so, the process of the composition of moving atoms is related to the idealized geometric patterns. The task for the mathematically thinking subject can be described against this background. Although all perspectives of being are based upon one common principle, it is not possible to present its infinite, ideal and real aspects through the use of just one single method. Consequently, mathematics split into ‘ideal-theoretic’ and ‘realistic’ or, if one prefers, ‘physical’ disciplines with different aims. Therefore, the diversity of mathematical problems treated in *De triplici minimo et mensura*—such as the establishing of a universal theory of measurement, the development of indivisible magnitudes, the relationship between the infinite continuum and the limitation of parts, the common measure of curved and straight lines, or the use of discrete mathematics to describe the atomic structures of individual material forms—are not to be understood as an arbitrary col-

lection of mathematical reflections, but rather as an expression of a special kind of methodological awareness which tries to do justice to different objects and forms of cognition.⁴¹ In this sense, the mathematical sciences are highly context-dependent forms of knowledge where all the different aspects of understanding the world are merged in a specific manner.

BIBLIOGRAPHY

Primary sources

- Bruno, G. "Articuli adversus mathematicos." In *Jordani Bruni Nolani opera latine conscripta*. Vol. I, 3. Eds. F. Tocco and H. Vitelli. Florence: Le Monnier, 1889. Reprint Stuttgart/Bad Cannstatt: Frommann, 1962.
- . *De la cause, du principe et de l'un—De la causa, principio et uno. Œuvres complètes*. Vol. 3. Ed. G. Aquilecchia. Trans. L. Hersant. Paris: Les Belles Lettres, 1996.
- . "De Immenso et innumerabilibus." In *Jordani Bruni Nolani opera latine conscripta*. Vol. I, 1. Ed. F. Fiorentino. Naples: Morano, 1879. Reprint Stuttgart/Bad Cannstatt: Frommann, 1962.
- . *De l'infini, de l'univers et des mondes—De l'Infinito, Universo e Mondi. Œuvres complètes*. Vol. 4. Ed. G. Aquilecchia. Trans. J.-P. Cavaillé. Paris: Les Belles Lettres, 1995.
- . "De Monade, numero et figura." In *Jordani Bruni Nolani opera latine conscripta*. Vol. I, 2. Ed. F. Fiorentino. Naples: Morano, 1884. Reprint Stuttgart/Bad Cannstatt: Frommann, 1962.
- . "De triplici minimo et mensura." In *Jordani Bruni Nolani opera latine conscripta*. Vol. I, 3. Eds. F. Tocco and H. Vitelli. Florence: Le Monnier, 1889. Reprint Stuttgart/Bad Cannstatt: Frommann, 1962.
- . *Dialoghi italiani*. Eds. G. Gentile and G. Aquilecchia. Florence: Sansoni, 1958.

Secondary sources

- Bönker-Vallon, A. *Metaphysik und Mathematik bei Giordano Bruno*. Berlin: Akademie Verlag, 1995.
- . "Matematica." In *Enciclopedia bruniana e campanelliana*. Vol. 1. Eds. E. Canone and G. Ernst. Giornate di studi, 2001–2004, col. 105–119. Pisa/Rome: Istituti editoriali e poligrafici internazionali, 2006.
- . "Giordano Bruno." Contribution to *Renaissance und Humanismus* (ed. F. Ueberweg) in *Grundriss der Geschichte der Philosophie*. Ed. E. Rudolph. [New edition forthcoming in 2012.]
- Cassirer, E. *Leibniz' System*. (1902) Reprint, Hildesheim: Georg Olms Verlagsbuchhandlung, 1962.
- Hall, A. R. *Isaac Newton*. Cambridge: Cambridge University Press, 1992.
- Heipcke, K., W. Neuser and E. Wicke. "Über die Dialektik der Natur und der Naturerkenntnis." In *Die Frankfurter Schriften Giordano Brunos und ihre Voraussetzungen*. Eds. K. Heipcke, W. Neuser and E. Wicke, 145–62. Weinheim: VCH, Acta Humaniora, 1991.

- Heuser-Keßler, M. L. "Maximum und Minimum. Zu Brunos Grundlegung der Geometrie in den *Articuli adversus mathematicos* und ihrer weiterführenden Anwendung in Keplers *Neujahrsgabe* oder *Vom sechseckigen Schnee*." In *Die Frankfurter Schriften Giordano Brunos und ihre Voraussetzungen*. Eds. K. Heipcke, W. Neuser and E. Wicke, 181–97. Weinheim: VCH, Acta Humaniora, 1991.
- Jammer, M. *Das Problem des Raumes. Die Entwicklung der Raumtheorien*. Darmstadt: Wissenschaftliche Buchgesellschaft, 1980.
- Lasswitz, K. *Geschichte der Atomistik*. Vol. 1. Hildesheim/Zurich/New York: Georg Olms Verlag, 1984.
- Volkert, K. *Geschichte der Analysis*. Mannheim/Vienna/Zurich: BI-Wissenschaftsverlag, 1987.

NOTES

- 1 Bruno, *De minimo*, 136, lines 21–32.
- 2 "Triplex igitur ex arca exiguitatis meae depromptum munus (tibi, ter maxime Princeps,) offero." Bruno, *De Immenso*, 196.
- 3 "Primum in methodo certe mathematica, secundum (ut licet) divina, tertium vere naturali." Ibid., 197.
- 4 See Bruno, *Infinito*, 73–83.
- 5 "Deus est monadum monas, nempe entium entitas." Bruno, *De Minimo*, 146, line 30.
- 6 "Sive significationes mensurae spectes, [...], mensuram primam mentem ipsam intelligas atque dicas oportet; omnis enim mensura a mente recipit denominationem." Bruno, *Articuli*, 16, lines 22–23; 17, lines 1–2.
- 7 "Sum quod est." Ibid., 26, line 12.
- 8 "Sicut ergo per monadem omnia sunt unum, ita et per monadem sunt; quando quod unum non est, nihil omnino est." See Bruno, *De Minimo*, 146, lines 32–33.
- 9 "Deus est monas omnium numerorum fons, simplicitas omnis magnitudinis et compositionis substantia, et excellentia super omne momentum, innumerabile, immensum. Natura est numerus numerabilis, magnitudo mensurabilis, momentum attingibile. Ratio est numerus numerans, magnitudo mensurans, momentum aestimans." Ibid., 136, lines 23–28.
- 10 "Minimum est substantia rerum, quatenus videlicet aliud a quantitatis genere significatur, corporearum vero magnitudinum prout est quantitatis principium. Est, inquam, [...], punctum in magnitudine unius et duarum dimensionum, atomus privative in corporibus quae sunt primae partes, [...] monas rationaliter in numeris, essentialiter in omnibus." Ibid., 139, lines 31–33; 140, lines 1–5.
- 11 "In minimo, simplici, monade opposita omnia sunt idem [...]. Ostenditur hoc primo in Deo [...]. Secundo, in universo ubi indifferentia sunt longum, latum et profundum, et quod ubique habet medium..." Ibid., 147, lines 1–14.
- 12 See Bruno, *Causa*, 299–307.
- 13 "In sphaera finita tres dimensiones ab uno puncto et ad unum punctum collatae ad extremum et medium non differunt. In infinita hoc omnino ab omni et ad omne punctum." Bruno, *De Minimo*, 181, lines 22–25. See also Bruno, *Causa*, 273, 277; and Bruno, *Articuli*, 14, lines 23–24.
- 14 See Bruno, *De Minimo*, 148, lines 12–15, 27–29; 149, lines 1–2.

- 15 Ibid., 154, lines 2–6.
- 16 See Bruno, *Articuli*, 22, lines 10–11.
- 17 As for point 3, see Bönker-Vallon, “Giordano Bruno.”
- 18 See Bruno, *De Monade*, 343, 346.
- 19 See Bruno, *De Immenso*, 231.
- 20 See Bruno, *De Minimo*, 153, lines 32–33.
- 21 “Non enim distinguunt [scil. Peripatetici] inter terminum qui nulla est pars, et minimum quod prima est pars.” Ibid., 158, lines 12–13. “Est minimum cuius pars nulla est, prima quod est pars. / Terminus est finis cui nec pars, quod neque pars est.” Ibid., 284, lines 12–13.
- 22 “[...] lineam vero quae minima pars est, [...], ex punctis in longum dispositis (in quorum multiplicationem defluit) intelligo compositam...” Bruno, *Articuli*, 33, lines 13–15. “Linea per longum tum continuatio puncti / Proxima pars plani, et cui pro longedine partes.” Bruno, *De Minimo*, 284, lines 21–22. For the use of the concept of “continuatio” in Leibniz, see Cassirer, *Leibniz’ System*, 147. See also Bönker-Vallon, *Metaphysik und Mathematik*, 99.
- 23 “Ergo linea nihil est nisi punctus motus, superficies nisi linea mota, corpus nisi superficies mota, et consequenter punctus mobilis est substantia omnium, et punctus manens est totum.” Bruno, *De Minimo*, 148, lines 27–29. With his theory of “flowing” magnitudes, Bruno introduces a “kinematic” aspect into geometry. A similar but mathematically much more elaborated idea is found in Isaac Newton’s theory of fluxions and his rejection of “abstract mathematics.” See Volkert, *Geschichte der Analysis*, 88. See also Hall, *Isaac Newton*, 251; and Jammer, *Das Problem des Raumes*, 103.
- 24 “Licet quod in uno opere acceptum est ut prima pars, alio in opere ut ultima capposit.” Bruno, *De Minimo*, 159, lines 1–2.
- 25 “Minimum quod est atomus est sphaera.” Bruno, *Articuli*, 22, line 11. See also Bruno, *De Minimo*, 177, lines 10–14; 179, lines 4–6.
- 26 “Omnis corporum vis est in sphaera, omnis sphaerae vis est in circulo, omnis vis in centro, vis omnis visibilium est in invisibili.” Bruno, *Articuli*, 24, lines 21–23.
- 27 For the possibility that Bruno’s development of the “principle of the densest packing” was used by Johannes Kepler, see Heuser-Keßler, *Minimum und Maximum*, 195.
- 28 “Nos [...] circa unum punctum et ad unum individuum ultra sex individua pertingere non posse indicabimus.” Bruno, *Articuli*, 23, lines 9–11. See also the illustrations in *Articuli*, 70; and *De Minimo*, 183.
- 29 “Universum est maximum. Totum est maius et perfectum. Pars est minus, imperfectum, et proximior mensura. Individuum est minimum, nec perfectum, neque imperfectum, et communissima mensura.” Bruno, *Articuli*, 10, lines 2–5.
- 30 See *ibid.*, 11, lines 8–11.
- 31 See *ibid.*, 57, lines 17–18.
- 32 See *ibid.*, 22, lines 26–29; 26, lines 21–22.
- 33 “Minima dum circa minimum hoc pacto ad spatium complendum adponuntur, et peripheriam duplicant, in hexagoni speciem perpetuo excrescunt [...].” Ibid., 23, lines 16–18.
- 34 See *ibid.*, 10, lines 22–24.

- 35 "Naturalia omnia (licet quaedam horum magis, quaedam vero minus, tardius quaedam, quaedam vero velocius, haec quidem expressius, illa insensibilis) continue alterantur, trepidant, moventur, exagitantur..." Bruno, *De Minimo*, 199, lines 15–18.
- 36 "Sensibilia quippe vera sunt non iuxta communem aliquam et universalem mensuram..." Ibid., 194, lines 17–18.
- 37 See ibid., 218, lines 18–32. As for the further progression of the numbers, see the explanation by Lasswitz, *Geschichte der Atomistik*, 373.
- 38 See Bruno, *De Minimo*, 217, lines 9–18.
- 39 As for the possible interest of Joachim Jungius in Bruno's mathematical description of matter, see Heipcke, Neuser, and Wicke, *Über die Dialektik der Natur und der Naturerkenntnis*, 156sq.
- 40 Ibid., 160.
- 41 See Bönker-Vallon, *Matematica*, col. 105–19.

MICHELE CILIBERTO

“...per speculum et in aenigmate...”*

Vis interea dicam quare tam pauci sciunt et apprehendunt?
[...] Ille qui in se videt omnia, quique est omnia idem.

De imaginum compositione,
dedication to JOHANN HEINRICH HAINZEL.¹

Thinking through images: this is, in every respect, the central theme in Giordano Bruno’s *nova filosofia*, running throughout his Latin as well as his Italian works. In *Eroici furori*, the last and in many ways the most fascinating of the Italian dialogues, the *itinerarium mentis ad deum* of the “furioso” is depicted by a magnificent gallery of images which are described in words rather than printed as xylographic images (according to the typical Renaissance taste). However, his Latin works are characterized by the presence of, and systematic recourse to, images in their proper sense that directly shed light on the meaning and characteristics of Bruno’s philosophical research. Quite obviously, Bruno was perfectly aware of the bluntly philosophical value of the images he used.

Often, these illustrations were etched by Bruno himself: As is well known, he was able—when necessary—to etch wood for engravings, and to revise them, as in the case of *Articuli adversus mathematicos* and *De minimo*.² After all, he had learnt the rudiments of typography in his youth and, subsequently, liked to oversee the publications of his work, making amendments (sometimes without measure) throughout the printing process, as in the exemplary case of *Cena de le Ceneri*. Another deeper motive drove Bruno’s commitment to the creation of the woodcuttings due for illustration: He was aware that images—as such—were at the core of his inquiry and that he had brought about a real revolution—technical as well as philosophical—to this field, which gradually spread from his mnemo-technical works into the crucial points of his philosophy.

According to Bruno, one either thinks through images or it is altogether impossible to think. Bruno developed this belief from the onset of his

career, expounding the direct and highly creative expression of mnemotechnical works. It is not surprising, then, that he focused on images in his first work, the *De umbris idearum*, and dedicated the last text he was able to edit, the *De imaginum, signorum et idearum compositione*, to images.

Throughout his life, Bruno speculated about the value of images and what they mean to someone pursuing truth. This point has been seriously neglected and deserves closer attention precisely on account of its philosophical significance: Bruno entered the philosophical dialogue by using images; but he also closed his public career with a book on images. However, it is important to note that, in both cases, his mnemotechnical works are the area in which his meditation on this subject, the fundamental motifs of all the *nova filosofia*, was originally born.

This idea is not easy to acknowledge: mnemotechnical endeavors, like magic, have long been dismissed as extravagant, senseless experiments and were consequently relegated to the outer edge of Bruno's body of work. For example, a great historian like Felice Tocco puts Bruno's mnemotechnical and Lullian works side by side. They are indeed intrinsically linked, yet they should be carefully distinguished according to their specific modalities and the 'public' and 'private' interlocutors for whom they were intended. Not even Giovanni Gentile, another authoritative scholar of Bruno, devotes noteworthy consideration to these works. This is no coincidence: Although they wrote from extremely different viewpoints, both Tocco and Gentile supported a "genealogy" of modernity that, in order to reappraise the *nova filosofia* as a decisive link in the "golden chain" leading to modernity, marginalized the mnemotechnical works.

To rescue the mnemotechnical texts from oblivion, scholars had to eliminate the interpretations that dominated the nineteenth-century (and first half of the twentieth) as they were mostly concerned with identifying Bruno as a forerunner of various modern schools of thought. To reaffirm the value and centrality of the mnemotechnical works, it was important to get rid of a stereotyped image of the Renaissance, of outdated views concerning the relationship between the Renaissance and modernity, and—in *primis*—of a unilateral and static view of modernity. This task was neither simple nor short; however, it is thanks to the pioneering investigations carried out in the course of the twentieth-century by scholars like Warburg, Garin, Rossi, Vasoli, and Frances A. Yates that magic and mnemotechnics are now commonly perceived as central features of the Renaissance meditation on mankind, nature, and experience. The constitutive core of Giordano Bruno's thought would be impossible to decipher without taking his mnemotechnical works into consideration.

Bruno's idea of the impossibility of a process of thinking which is not “thinking through images” is the operating and unfolding “principle” in his mnemotechnical works, making them the most fascinating, ingenious and arduous text of the *nova filosofia*. It is a sort of *Urtext*, essential to the understanding of the genesis, features, and development of his philosophy. Studying his experiments with mnemotechnics means gaining direct access to Bruno's “philosophical workshop” and access to this workshop is an indispensable tool for comprehending Bruno's “mind” and for following the patterns from which the key elements of the *nova filosofia* matured. These texts are very complex, sometimes obscure, and difficult to interpret. Still, how they were reduced to mere extravagant oddities that placed Bruno in the category of “pre-modernity” is one of those mysteries that only historians are able to deconstruct. This is not surprising; after all, there is no historiography without categories or, indeed, without ideologies. It would be enough to keep in mind (as a preventive therapy) that the Past is another Present, and should be studied accordingly.³

In a passage from a recent commentary to *Explicatio triginta sigillorum*, there is a statement, which can be espoused in every respect:

The brain thinks through images, because all abstract and conceptual information originates from the reading and interpretation of fantastic figures—either natural or artificial—and the fantastic dimension acts as interface between the logic dimension and Nature, since all the experience of the world is seen through it, as in a mirror; it is not, however, a passive and uncontrolled magma: in fact, since it “borders” on the cogitative faculty, it is constantly open to the rational dimension, which incessantly derives from and pours into the partial and progressive impressions that are the object of its elaborations. In conclusion, mnemonic *loci* and the images of memories, ideated by Bruno, are but peculiar and defined modalities – regulated by the laws and principles of a specific *ars*—of a cognitive operative principle spontaneous and innate in man which also receives a sort of enhancement and optimization when rationality ‘descends upon’ it to regulate its actions.⁴

The first truly theoretical *nucleus* that must be pointed out is that, between “image” and “reason” and “intellect” and “fantasy,” there is a “virtuous circle” that clearly distinguishes Bruno's position from the beginning and will develop in his later works, up to the final pages of *De imaginum compositione*. It is not difficult to understand why this “circle” became neces-

sary: Bruno, moving from the *ars memoriae*, progressively dislocates man, nature, and knowledge into a different and original dimension: The dimension of the infinite, with decisive consequences on the level of gnosiology as well as of cosmology.⁵

Scholars wonder when, and with which sources, Bruno narrowed his scope down to the topic of the infinite and placed it at the center of his thought. This is a relevant question, indeed, on strictly historiographical grounds. Besides the fact that Bruno cannot be reduced to merely the books that he had on his “drawing board” and that his originality paradoxically lies in the misreading of other authors rather than in their slavish replication, one point is unequivocal: It is in the course of his meditation on the *ars memoriae* that Bruno elaborated the motif of the infinite on the basis of a specific ontology *sine qua* the “discovery” of the infinite would have been impossible.

Also in this case, the historian has to face one of the many paradoxes that constellate the history of thought: any kind of humanistic anthropocentrism was alien to Bruno and even in the first years of his vocation, he set out to elaborate a vision that emphasizes the limitations of man and his “accidental” nature, thereby breaking any linear link between *ordo rerum* and *ordo idearum*. Furthermore, he moved from the analysis of the infinite potency of fantasy to the concept of “images” as the way that man (in his present condition) can come close to the first truth and the “first good.” However, from the assumption of a radical “limit” of man springs forth the possibility of attaining the highest knowledge and disclosure (via “images”) of the sole possible “virtuous cycle” between man and truth. These two processes are closely interwoven in many different manners. However, the role assigned by Bruno to fantasy and the necessity for the intellect to establish a systematic bond with the fantastical dimension in order to grasp something of the truth cannot be understood without the acknowledgement of the importance of the specifically ontological postulate about the “accidentality” of the human condition.

This is an essential dialectic: without the infinite potency of fantasy or the coordinative activity of the intellect, man cannot undertake the *itinerarium* that leads into the horizon of truth, insofar as he is allowed to, and would instead be trapped in his condition of “accidentality.” He can only emerge from this state by pivoting on the power of fantasy and its ability to ceaselessly produce images, which parallels the inexhaustible power of nature to produce innumerable forms and figures.

Therefore, it is through images that man can set up a creative circuit with nature and, thus, (through nature) with the truth. Without this visual

medium, man would be condemned to ignorance and “asininity” (to use a keyword of Bruno’s philosophical vocabulary). Intellect—as we shall see—plays a crucial role in this process and is able to establish a positive relationship with fantasy (yet, should man rely only on the power of intellect, he would never attain the truth). If man intends to pursue a path that can take him—for a single moment—close to the truth, he must “raise the ante,” trying new instruments and new methods, “placing his stake” on the potency of fantasy, on those very images that constellate from the beginning to the end the *itinerarium* of the “eroico furioso.”

This point of view can also be verified and confirmed by reversing the perspective. Today, it is quite common to interpret *Eroici furori* as a work concerning the art of memory; but this is an overstatement, or better yet a mistake arising from an inadequate understanding of the centrality of the *ars memoriae* at every level of Bruno’s philosophical research. In the *Furori*, the fruits of his labors on mnemotechnics research are evident to an exceptional degree, but are transposed onto a properly gnosiological level to frame an inquiry that directly concerns the “characteristics” of human understanding. Bruno inevitably tackles the problem of the function and speculative meaning of images once they are the primary tools used by the man who wishes to know something of reality in an infinite universe. In this respect, the *Furori* is indeed a mnemotechnical work in the same way all the Brunian texts dealing with this range of problems are (and these problems derive *en bloc* from the peculiar take on reality which was elaborated for the first time in his mnemotechnical works). Quite obviously, every work has a specific identity and autonomy: in the *Furori*, the motif of “images” is undoubtedly stronger than in other Brunian works. This is quite natural, since the main issue is the conditions that relate to the potential of human understanding. Better still, this confirms that the “image” motif (along with its manifold semantic area) becomes central every time that Bruno deals with these subjects, as is evident even in the Frankfurt poems (to a limited degree).

In summary, the fact that Bruno focuses on images—or even on a “system” of images, as in *Furori*—does not imply that the work in question is a mnemotechnical text. Affirming this would imply a misunderstanding of the general theoretical depth of this theme in the frame of the *nova filosofia*: Images stem, without doubt, from the “trunk” of *ars memoriae*, and receive from it their strength and vigor. At the same time, they progressively detach themselves from their point of origin and constitute the underlying pattern of Bruno’s philosophical research in every field, from gnosiology and ontology to his reflection on magic. The art of memory, so

to say, is the “seed” and an essential “species” of Bruno’s theory of images (not the “genus” to which any system of images necessarily refers to). Herein lies the originality and the general theoretical relevance of his mnemotechnical works, which, as we said before, attests to an exceptionally fertile dialectic between fantasy and intellect—between the infinite creative power of images and the regulative function of the intellect—both of which are intertwined in the attempt to project man beyond himself and his structural intrinsic limits.

As is stressed in several passages of the commentary on these works, this is a key point: referring to *Explicatio*, but effectively delineating an essential distinguishing quality of Bruno’s thought, it is pointed out that “conceptual abstraction is exclusively reached through perception and the projection of experience onto fantasy (so that, in accordance with the Aristotelian discourse, there is no thinking without images).”⁶ Furthermore, it is explained that this process is ‘bidirectional.’ In fact, as we pass from images to concepts via the attractive force of reason, by virtue of the symbolic association between concepts and figurations, it is possible to descend again into the dimension of fantasy, giving shape (a tangible as well as fantastic substratum) to ideas. The reasoning faculty is therefore able to operate in both directions: toward abstractive synthesis (deriving more general contents from specific images and impressions) as well as towards creative analysis (moving back from ideas and universal concepts to specific and particular cases, submerging into the “laboratory of fantasy” and experimenting with all the possible implications and applications of a concept in a visual and virtual dimension). Therefore, “the intellect” is a sort of formative principle and fantasy is the first matter that “fuels” the intellect’s productive activity, whose result is the interior world of understanding (i.e., the logical universe which is a reflection of Nature and a shadow of the metaphysical and divine universe).⁷

Likewise, in the commentary on the *De imaginum compositione* (1592), which examines the differences between this and the “static” theoretical frame delineated in the *De umbris* ten years earlier, we read that: “in the cognitive process fantasy and intellect are mutually bound and connected [...]. In fact, Bruno assigns to the ‘joint glance’ of fantasy and intellect the task of ‘seizing’ images and tying them to each other according to criteria sanctioned once and for all, and, thus, transforms the chaos of memory into the order of the written page.”⁸ In brief, “the mnemotechnical image is being produced at the core of a process in which the liveliness of images stimulates the intellect, and the intellect, in turn, seizes the images, and elicits a double meaning from them.”⁹

Although it is scattered with critical points and discontinuities, this is a coherent meditation and the case of the *Furori* in this framework assumes extreme importance. The Nolanus implements an “agenda” directed toward the sphere of the universe that is reconsidered after the adjustment of the ontology of “Life-infinite matter” in the *De la causa, principio et uno*. He urges man to transform himself into a pure “visual power,” one that is able to collect all of reality into the unity of the universal monad.

This is not a choice, but rather a necessity, connected to a specific ontological option: if he does not want to lose himself and become nothing, this is the only *itinerarium* that man can follow. He must risk everything and make a leap toward the experience of a “metaphysical movement,” which consists of continuous approaches to and diversions from truth, in an endless spiral. In the infinite universe, any linear, direct link with the truth is broken; any speculative correspondence where man could find rest on a permanent basis disappears. The truth must be built and grasped minute after minute, in the frame of an experience that is never definitively concluded. However, returning again to the starting point, the “metaphysical movement,” in turn, is only made possible by the power of fantasy—of the images that the “furioso” is able to create and remember, descending into the depths of his own self.

This is, at the same time, an existential as well as a gnosiological problem: without images, man forgets himself; having forgotten and lost himself (and consequently having lost the possibility of reaching the truth), he is trapped in the ‘cave’ of ignorance, in the gloom of darkness, and unable to escape without the “light” of images. He must rise to the upper part of the “wheel,” breaking the vicissitudinous rhythm in which—like any other accident in the universe—he is inevitably immersed. This is another crucial theoretical point delineated by Bruno in various ways in his mnemotechnical works, as demonstrated by the comparison of the *De umbris* and the *De imaginum compositione*, and by the light of the decisive experience of the *Furori*. While Bruno seems convinced in the *De umbris* that the power of intellect allows man to seize unity (though in shadow), in the *De imaginum compositione*, the cognitive faculty is constantly limited by what is ephemeral and manifold, even in its higher forms.¹⁰ Undoubtedly, this modification is influenced also by the reflections developed in the *Eroici furori*, “where the metamorphoses of heroic love have dramatically shown how difficult and tormented the experience is that enables the attainment of the monad, and how deep the chasm is between the ordinary forms of knowledge and the experience of the One. After the *Furori* [...] the com-

prehension of unity cannot be interpreted according to the static models of *De umbris*, nor as the result of the sole intellectual experience.”¹¹

These observations allow us to resume a topic we have already called attention to, which is at the center of the *Furori*, the vernacular work that offers (not coincidentally) the most articulated and systematic delineation of the system of images. As we have already noted, the *Eroici furori* directly tackles the gnosiological problem with the clear purpose of focusing the research on cosmology (where the issue of the relationship between “original” and “depiction,” between *lux* and *lumen*, will emerge again, symptomatically, in crucial passages like the discussion with Palingenius).¹²

Bruno never abandons the belief that intellect per se, in the infinite, cannot disclose the way to truth (insofar as man is allowed to)—it is weak, deficient, and unable to “get out” of itself. If man relies only on himself when he thinks of the world or the infinite universe, he does not “comprehend” it (in both meanings), notwithstanding his aspirations. As Bruno says in the *Furori*,¹³ the “hound dogs” (intellect) are not enough; what is needed are the “mastiffs” (will) to project the intellect beyond itself and to push it toward what is radically different from it on account of an intrinsic “disproportion.” The intellect can be free of its limits thanks to the strength of will power; in this sense, will plays a role symmetric to the one played by the faculty of fantasy: this latter potency gives voice to man’s ability to operate. By drawing into himself, man is able to relieve himself of his own limits. Man can only “touch” the first truth by thinking through images. Yet, he accomplishes this only if he is able to descend into himself, opening his way to God, nature, and the universe. The more he descends into himself, the closer he gets—in the rhythm of the “metaphysical movement”—to what is ontologically farthest from himself and to what is incomprehensible if he uses the ordinary abilities of the intellect. With this, we return to another essential precept of *ars memoriae*: It is only by descending into himself, and by gaining memory, or self-understanding, that man can build images that allow him to decipher the “enigma” of reality and, finally, to dominate it. This viewpoint is the effect and the consequence of Bruno’s anthropology and ontology directly reflected in the *ars*. This is based on the principle of the “shadow” (delineated in a systematic manner in the *De umbris* but also discussed in the *Sigillus sigillorum*). Any kind of humanistic supremacy of man is alien to Bruno’s anthropology and ontology, because in the infinite universe man is but a detail, an accident, unable to solve the “enigma” that surrounds him once and for all. Only thanks to an exceptional effort, can man establish communication with what is structurally different from him: The ‘first truth,’ the ‘first good.’

This *iter* is far from trivial (as demonstrated by mnemotechnical works from *Cantus Circaeus* to *Sigillus*). Man is constantly placed on the edge and can take nothing for granted because he might fall at any moment. The effort that he makes—each time, for the first time and, therefore, without any predetermined rule—can turn into a defeat, as stressed in *Furori*, which reveals the difficult progress of the “furioso” (the accident) in the infinite. Herein lies another relevant difference between Bruno and Cusanus. The Cardinal writes: “truth is measured by the image,” and adds, echoing Paul’s words, that “this is science through enigmas. Man also has a sharp vision, which allows him to see that the enigma is the enigma of truth, so that he knows that the truth is that which cannot be represented in any enigma.”¹⁴ Bruno is also aware of this and states that truth is offered in an enigma, but he is nonetheless convinced that man may not ultimately grasp the truth that is beyond enigma. Between ‘enigma’ and ‘truth’ there is a structural, and consequently unavoidable, link: This is, in sum, the ultimate ‘lesson’ taught by the *ars memoriae*. When Actaeon—the ‘furioso’ at the exceptional apex of his effort—“is all eye to the prospect of the whole horizon” and sees the whole as one, he still only sees the monad in its ‘genitura’ rather than in its essence.¹⁵ Man must face the enigma because this is the way that can lead him to the truth, yet is never able, not even in the moment of his highest ascent, to reach the truth beyond every enigma. He can, as taught by the *ars*, decipher and penetrate into the structures of reality through the enigma, but the enigma, the image, is coessential to the human condition. This lexical and conceptual area makes its appearance each time the problem of the first truth and of human knowledge appears; ‘mirror,’ ‘image,’ ‘similitude,’ ‘enigma’... This is not a linguistic choice, but rather an intuition of reality that finds an articulated and complete expression in these lemmas. The result of the human effort, however, is not negative or unsuccessful, as the *ars* confirms. On the contrary, this lexicon is employed in a positive, operative sense and paradoxically becomes the way to concentrate on the universe, on the ‘effect’ rather than on the ‘cause,’ on the ‘image’ rather than on the ‘original,’ on *lumen* rather than on *prima lux*.

There are two passages worth mentioning to delineate the results of Bruno’s meditation on the *ars*. In one of his most mature reflections, Bruno, echoing a Platonic theme, writes: “These ‘furori’ we are reasoning about [...] are not an oblivion, but a memory; are not self-negligence, but love and longing for good and beauty, by which we may transform and become perfect.”¹⁶ Still, this interpretation of ‘furore’ as ‘memory’ and not ‘oblivion’ (if we want to escape from a condition of servitude and passivity,

even when we are possessed by the ‘divine spirit’) has its roots precisely in Bruno’s works of 1582 and 1583. Bruno explicitly refers to them and then defines the general theoretical view in which his interpretation of ‘furore’ must be considered. In another emblematic text, Bruno delineates the twofold way to truth disclosed to man, taking into consideration the “disproportion of our cognitive means to the cognizable.” “In order to contemplate divine things,” says Bruno, “we must open our eyes via figures, semblances, and other reasons that the Peripatetics collect under the name of ‘phantasmata,’ or, through being, proceed to the speculation of the essence, from the effects to the knowledge of the cause.”¹⁷ It is perfectly clear to Bruno that, due to this ‘disproportion,’ this second way is precluded: “These means, far from being useful for the accomplishment of this purpose, are rather obstacles, if we maintain that the highest and deepest cognition of divine things takes place through negation, and not through affirmation, knowing that the divine beauty and goodness does not and cannot fall under our concepts but is beyond and beyond incomprehensible; particularly in this condition, called ‘speculator of phantasmata’ by philosophers and ‘vision through secular similitude and enigma’ by theologians, because,” he concludes, “we do not truly see the effects and the real species of things, or the substance of ideas, but the shadows, vestiges and simulacra of ideas, like those who are in the cave and, from their birth, turn their backs to the point of entrance of light and their faces to the bottom of the cavern, where they do not see what really exists, but only the shadows of what substantially exists outside the cave.”¹⁸

Commenting on this passage, Tocco stresses in the *Furori* that Bruno “goes back to the philosophical views of *De umbris*” and is more a disciple of Plotinus than of Plato.¹⁹ Gentile quotes this assertion without comments, embracing the interpretation of his Florentine *magister*. Yet, this is a general problem, not confined to a matter concerning sources (although Tocco was inclined to stress the Plotinian influence in the light of his vision of the development of Bruno’s thought).

At the basis of these positions, and of the parallel value attributed to the realm of ‘shadows,’ ‘vestiges,’ and ‘simulacra,’ there is a theoretical nexus that the Nolanus never abandons, which leads to the decisive value attributed to images in the quest for truth. Clearly a consequence of the ‘discovery’ of the infinite, the *nova filosofia* reverses the traditional view according to which it is possible to ascend from the ‘effects’ to the ‘cause,’ and from the ‘universe’ to ‘God.’

This is the concept that the aforementioned passage of the *Furori* distinctly elucidates, although it is already delineated in the Italian dialogue

De la causa, where Bruno systematically defines his ontological perspective. As usual, Bruno begins with the ‘details’ in order to give shape to a general statement: He who sees the portrait of Helen does not see Apelles, but rather the “result of the operation that derives from the effectiveness of Apelles’s ingenuity (this is all an effect of the accidents and circumstances of the substance of that man, who—as far as his absolute essence is concerned—is totally unknown).”²⁰ This ‘principle’ is all the more valid for the relationship between God and the universe: “from the cognition of all the dependent things” we cannot “draw inferences, about the first principle and cause, in a less effective way than through vestige.”²¹ This is exactly the reason why Bruno, in *De la causa*, praises ‘Cabalisti,’ ‘Talmutisti,’ ‘Apocaliptici,’ ‘Platonici’ (without distinction) and also ‘Peripatetici’ immediately following. Although in different manners and with different arguments, they all realized and proclaimed that “we can know nothing, if not through vestige, [...] remote effect, apparel, shoulders or back, mirror, shadow and enigma [...] of the divine substance, since it is both infinite and utterly distant.”²²

Bruno reuses all these lemmas in the passage of the *Furori* quoted above, demonstrating the continuity of a meditation revolving around this central motif unfolding across his philosophical research. From this viewpoint, it was not necessary for Bruno to ‘go back’ to the theories of the *De umbris* because he had never abandoned them; on the contrary, they were the basis of the ontology delineated in that dialogue in all its fundamental aspects.

Tocco, however, was paradoxically right in reference to the *De umbris*: The theme of shadows, simile, images (with the aforementioned variations) precisely dominates his mnemotechnical works (firstly, *De umbris*). Also, as we have seen from the quotations from *De la causa*, this issue becomes fundamental for the definition of the Brunian view concerning the universe, the relationship between the universe and the “things in the universe,” and above all, the relationship between God and the universe. Even when man is ready to put himself at stake in the experience of truth, he would not be able to understand anything about the first principle (God) and the universe, without images. The universe, in turn, can be ‘comprehended’ (that is, seen) only if it is rethought and interpreted as an ‘image,’ a ‘portrait’ or a ‘simulacrum.’ The image, as is important to note in order to appraise the consistency of Bruno’s thought, operates *ex parte subiecti* and *ex parte obiecti* and, under this condition, it is only possible to establish a communicative circuit between man and the universe. Without the aid and the unifying power of images, both man and the universe would be equally scattered.

This issue is a privileged standpoint from which to evaluate Bruno's originality and allows us to address again the historiographical question of his relationship with Cusanus. "Man," writes the Cardinal, "has got the intellect, which is the similitude of the divine intellect, when creating. Therefore, it creates the similitude of the divine intellect, like the extrinsic artificial figures are the similitude of the intrinsic natural form [...and...] he measures his intellect depending on the powerfulness of its creations, and from it he measures the divine intellect, as the truth is measured by the image."²³

Therefore, the same relationship between God and man also exists between the truth and its image: they are reflected in each other through the image. Yet it is exactly this specularity that Bruno challenges with his vision of 'Life-infinite matter' and the role he assigns to the image on a strictly cosmological level. On the one hand, he converts the problem of the relationship man/God into the problem of the relationship God/universe. On the other hand, he insists that the 'effect' does not allow us to ascend to the 'cause' because we cannot know anything of the 'divine substance' "if not through vestige [...], mirror, shadow, and enigma."

The point of unity between man and God through the image is then broken. Still, this does not imply (and this is another central feature of Bruno's meditation) that the image of God (his 'portrait,' the universe) is inaccurate or unworthy. On the contrary, an insistence on the radical discrepancy between 'causes' and 'effects' does not result into a loss of importance or value on the part of the universe and of the 'things in the universe,' but leads to a claim of their relevance as regards the comprehension of God, insofar as it is possible for man. "Such a great emperor does not have [...] a small and idle simulacrum [...]: But it is a wide portrait, an admirable image, an exceptional figure, a high vestige, an infinite representation of an infinite represented object, a spectacle suitable to the excellence and pre-eminence of him who cannot be understood, comprehended, grasped."²⁴

Though God is radically distant, we can catch a glimpse of him in the 'portraiture' represented by the universe. Better still, as Bruno told Giovanni Mocenigo in Venice, God himself needs the universe and the infinite worlds that he ceaselessly produces. Mocenigo reported to the Inquisitors: Once "he said that God needs the world as much as the world needs God and that God would be nothing if the world did not exist and this is the reason why God continuously creates new worlds."²⁵ 'Original' and 'portrait' are, on different levels, *unum et idem*: If one disappeared, the other would also be endangered. What has to be pointed out is that both are in com-

munication thanks to the mediation of the image, which becomes—paradoxically but unavoidably—the condition of the possibility of both God and the universe. Thanks to this complex interrelation between the visible and the invisible, the enigma and the truth (basically, between corporeal and incorporeal matter) there is a chance of establishing communication between God and the universe on the one side and between the soul and God on the other (as demonstrated in the *Furori*).

Both communications are made possible by the nexus that the *nova filosofia* creates between *lux* and *lumen*, the source of light and the effects of light, enigma and truth, ‘original’ and ‘image’: In a never-ending reflection and transmutation of figures, ‘seals,’ and mirrors (‘outward’ as well as ‘inward’), the ‘inaccessible’ may be suddenly revealed, for one single moment, to man. In order to catch a glimpse of the ‘first truth’ and the ‘good’ of that impenetrable face, man must become purely eye, standing on the problematic edge between humanity and divinity (echoing, but in an original way, the Cusanian motif of man’s ‘sharp sight’). Man, in sum, can approach the truth, but only on the condition that he conceives it as an ‘image’ and can comprehend the universe under the framework of a communicative circuit that considers the universe as an ‘image,’ a ‘portrait,’ or a ‘mirror.’ Without this preliminary condition, the cosmology of the infinite universe and innumerable worlds does not work, since its generative source fails.

These positions shed light on another key-point of Bruno’s meditation: In the relationship between God and the universe, he is interested in the latter, in the ‘image,’ the ‘portrait,’ the ‘vestige,’ the ‘effect,’ and not in the ‘cause.’ Bruno has no special interest in the dimension of divinity *per se*. He is instead looking for the ‘punto de l’unione’ and reflecting on the forms of ‘mediation’ from a specific perspective: He consistently focuses on the universe, the ‘effect’. It is exactly on these grounds that Bruno emphasizes, to a greater extent, the specific ontological function of images in a context that leads him in *De imaginum compositione* (with a considerable shift in his theory) to intertwine his studies of mnemotechnics and magic. Both are essential factors in a true ‘theory of being’ that is specifically aimed at analyzing the ‘explicated,’ the ‘dispersed,’ the ‘universe,’ (or whatever must be brought back to unity in order to be ‘apprehended’), forcing the ‘limits’ of man to the highest degree.

Considering all this, it is easy to realize the inadequacy of the ‘transcendent’ interpretation of Bruno’s thought: the *iter* that he follows, on all levels, is precisely the opposite. If man’s main objective were God, or a proper meditation on God, he would not take a step forward in the quest

for truth, which is within his reach if he is able to understand the systematic and unavoidable connection between ‘truth’ and ‘image.’ He must analyze it in the different fields on which he concentrates (including, as we have already mentioned, the dimension of magic, which fits this fundamental theoretical frame as demonstrated by all the Brunian works, from the *Spaccio de la bestia trionfante* to the magic works *stricto sensu*).

Bruno’s way of proceeding is clear-cut: He questions the connection between God and the universe, but then ties them together through the ‘image,’ the ‘portrait,’ in a relationship which even involves mutual need—as he explains in *De l’infinito*. Furthermore, the dialectic between the ‘image’ and the ‘original’ is reformulated in the dialectic between ‘divine face’ and ‘universal substance’ (*volto*—face—is another term that fits well in this lexical constellation): “It is necessary that, of an inaccessible divine face, there is an infinite simulacrum in which, like infinite limbs, there are innumerable worlds.”²⁶ In the face of God, there is nothing we can comprehend directly: We can only perceive, looking at the “never-changing” figure of Simplicity, that he is absolutely simple. But the “infinite [...] innumerable and main limbs of the universe”²⁷ tell us about him. “Enarrant gloriam Dei” and, on their level, show the same simplicity as God: in fact, they all have “the same face, prerogative, virtues and effects.”²⁸ Following this line of reasoning (always with an eye to the dynamics of the ‘face’), Bruno investigates the relationship between God, the universe, and the “things in the universe” at the same time. There is the utterly simple face of the one who does not change and there is the All, which “changes its face going across the infinite space.”²⁹ In fact, if the divine face is utterly simple and unchanging, “forms, complexions, figures, colors” are just the “transient, fleeting, corruptible face of an unmoving, enduring, eternal being.”³⁰ On the level of the universe, “change” is essential, since it is through it that life is ceaselessly produced in all the worlds (Earth included), which moves in an endless vicissitudinous movement “for the perpetuation of the centuries and the change of its face.”³¹

In conclusion, Bruno’s absolutely simple God, praised in the metaphysical dialogues, paradoxically shows himself through the universe and through its infinite ‘changes of face.’ As a consequence, the man striving to reach that truth that “cannot be represented in any enigma” has to concentrate on the ‘shadow,’ the ‘image,’ and the ‘portrait.’ In this way, man re-establishes a connection with God, which the discovery of infinity radically jeopardizes because he relies on that ‘fantastic dimension’ which (as we have seen before) is the interface between logic and nature within the *ars* and is delineated in the *Explicatio*.

We can see that the generative power (in its systematic meaning) of the *ars memoriae* is revealed not only on a gnosiological or cosmological level: in fact, the striking element in these Brunian works is the coexistence of a plurality of issues, traditions, and problems that deliberately identifies its generative source in the *ars*. The *ars* operates just as powerfully on the level of ethics and this is no accident, nor an extrinsic recourse to a heterogeneous field. What Bruno wants to tell the reader is that the *ars* is a universal dimension, able to operate effectively on every level of reality for technical as well as theoretical reasons. This boundless openness is closely connected to the Brunian concept of nature and to the relationship that he establishes between *ars* and nature, between the infinite natural vicissitude and the inexhaustibility of the *sinus phantasticus*, one of the most innovative features of his mnemotechnics (which, not accidentally, fascinated Italo Calvino precisely because of its intertwining of infinite creativity and order in the frame of an encyclopedic aspiration which, carried out through combinatory and a fruitful recourse to Lull's legacy, is another distinguishing trait of the Brunian *ars*).³²

A few examples: In the *Cantus Circaeus*, the combination of *ars memoriae* and *renovatio mundi* is displayed as a sort of theatrical representation in an extremely evocative and effective way. Yet this connection operates in the *Sigillus sigillorum* as well, in the frame of an interconnection between mnemotechnics, ethics, and apocalyptic aspects, and this represents one of the most advanced points of Bruno's historical-philosophical meditation. After a thorough criticism of Protestants (who try to “push the poisoned people back into the old barbarity” and to “divert them from the object to which they are directed by all the laws”), Bruno concludes his examination of the first kind of contraction by powerfully combining the motif of the ‘apocalypse’ and that of *renovatio*. The ‘time of antidotes’ will come after the ‘time of poisons’ and the “world, finally made wise by its own evil sickness, will resolve to exterminate and eliminate them as if they were the darnel, caterpillar, and locusts of this age, or better still, like vipers and scorpions, and to castrate those who rejoice in idleness, avarice and ambition.”³³

This theme is important to Bruno, who symptomatically picks it up again in the poem at the beginning of the *Explicatio triginta sigillorum* and “intimates his hope for the advent of a ‘mythical’ age when the world, wise at last, though late (*sero sapiens*), will see ignorance and hostile prejudices removed from its surface.”³⁴ These ideas are rooted in a philosophy of history inspired by Hermeticism that finds complete expression in the *Spaccio*, where Bruno even translates (while modifying deeply) the *Lament* of Hermes Trismegistus. In other words, these ideas are central in Bruno's

mind and, although they emerge for the first time at this stage of his research, they are constantly considered right up to his last works, for example in some remarkable pages of the *De immenso*.

To investigate the reasons for the recurrence of these issues from both linguistic and conceptual viewpoints means to face the problem of the dynamics of Bruno's 'mind,' a task that cannot be accomplished here. In the context of our line of reasoning, however, some elements can be pointed out: First, these subjects, also outlined in *De umbris*, appear in a text that, for a long time, has been counted amongst the mnemotechnical works and implicitly dismissed due to an obsolete idea of Renaissance culture and philosophy. However, we must drop this misinterpretation if we want to understand Bruno's theories, in this particular text and in general.

This text, in fact, has strong philosophical caliber and is perhaps one of the most relevant in Bruno's œuvre. Yet, due to its composite structure, it also has the important merit of taking us straight into Bruno's 'workshop,' allowing us to both understand the manner in which his texts must be deciphered in general and to define (or confirm) at least four specific points. These include the articulated theoretical basis of his *ars*, which tackles a number of gnosiological, ontological, and ethical issues, evenly introducing them into the frame of the *nova philosophia*; the fact that ethico-political and religious issues are already established in his mnemotechnical works and destined to find a fuller development in the *Spaccio* (where the controversy against Puritans becomes central as much as vehement); the possibility, as a consequence, of dating the genesis of Bruno's first conception of the *Spaccio* to the last period of his stay in Paris, though in the frame of a polemic that, in the *Sigillus*, is aimed against Protestants as well as against monastic orders; and, last but not least, the text allows us to figure out Bruno's *modus operandi*.

Yet, one needs not exaggerate the relation between the *Sigillus* and the *Spaccio*. The persistency of these topics, even if in a short time span, attests to the continuity of some main themes and also to the incessant revision to which Bruno subjected his works.

One must not stop at this consideration, however important it may be. The original 'secret' of Bruno's mind lies in the perpetual interlacing—in changing virtually infinite shapes—of the original 'cells' of his thought, as exemplified in his mnemotechnical works. Without an understanding of this 'movement' and its pattern, it is impossible to understand the strictly systematizing function of the main constituents of the *nova philosophia*, and the variations they are subjected to, as well as the following central theo-

retical point: the paradigm of the *ars memoriae* directly reflects Bruno's way of thinking and operating. In other words, the *ars memoriae* is fundamental, but also something more than a generative source of the *nova filosofia*: it is the form of Bruno's mind itself, the 'structure' through which his mind finds expression. By understanding the *ars*, therefore, it is possible to decipher the functioning of his mind. Consequently, the 'continuity' between the *Sigillus* and the *Spaccio* previously referred to is not an exception; it is in fact the rule. Bruno's mind follows a spiral rather than a straight line—a 'metaphysical' rather than a 'physical movement' (to use a noteworthy distinction made, symptomatically, in the *Furori*,³⁵ where it is also possible to catch an autobiographical allusion).

If, in light of these considerations, we read the *Sigillus*, a text permeated with issues and motifs that will have a wide influence and will be subjected to deep transformations, it is not difficult to find confirmation of another important fact. These materials are sometimes, while not heterogeneous, of different kinds and origin. The *Sigillus* is anything but an organic work, in the usual sense of the term. The section on *contractiones*, however important, does not fit harmonically or uniformly with the structure of the text, which unfolds on multiple levels that are not fully elaborated in a unitary way. In the frame of the *ars*, undoubtedly, Bruno attaches particular importance to the process of the construction of personal identity, especially of those exceptional identities that distinguish themselves with the psychotropic experiences they have performed or are able to perform. Here, like in all the mnemotechnical works, Bruno intends to stress the value of individual 'creativity' to its higher extent: there is not a 'rule' that is universally valid once and for all, as there is not just one way leading to the 'eroico furore.' There is a technique based on specific (and sometimes very complex) principles and expedients, but 'originality' and individual 'creativity' are central features in Bruno's thought. It could not be any other way because the ontology of the *nova filosofia* is a qualitative, not a quantitative ontology; as such, it excludes the possibility of defining a universal 'rule.' In Bruno we do not find 'objectivity' in the modern sense of the word; his 'objectivity' is directly rooted in the primeval root of individuality, of human inner life. This fact has a precise purpose: Without memory and self-recollection, there can be no truth. Also in this case, the processes are connected: the insistence on *contractiones* is not surprising and, on the contrary, confirms the attention Bruno pays to whatever concerns the construction of specific individualities. This issue is stressed not only in the *Sigillus*, but also in the *Explicatio*, where Bruno proposes to

enhance the value of individual creativity by also experimenting with ‘personal’ solutions that enable the effective adaption of the instruments of the *ars* to meet one’s own particular needs.

Bruno constantly kept working on this central issue in Paris, Oxford, and London, taking notes and sketching drafts to be used for suitable occasions (theoretical or practical). For example, the fact that the *Sigillus* gathers different materials from different periods together is also due to the pressure of circumstances. His ‘oversight’ in the *De imaginum compositione*, where he refers to the *De umbris* although the topic at hand is actually delineated in the *Sigillus*, is telling and “suggests that the two dialogues, all in all, are founded upon a common nucleus.”³⁶ It is not particularly surprising, then, that the section on *contractiones*, however important, is not fully elaborated (from an editorial viewpoint) in the book. This is a result of Bruno’s way of thinking and working on his texts as well as of the way and timing in which the texts were published. It is expedient to linger briefly on this latter point.

In contrast to what has been sometimes said, Bruno is anything but a disorganized or inconsistent philosopher; in fact, he is a strongly systematic thinker. Undoubtedly, as has been remarked, he writes works of circumstance. With regard to Bruno, however, this expression must be carefully used. The ‘circumstances’ here refer to extrinsic occasions, not to the inner development of his works, which are the result of a long research process characterized (as the *ars* teaches) by the inter-lacings of original constants and infinite variations, in ways that are always new. The occasional character of his publications, as well as the controversies and intellectual fights in which they were supposed to take part, do not mean that these works are not the fruits of a lengthy process of creation and revision. This distinction must be acknowledged in order to appreciate the real nature of these works.

In the case of the volume that includes the *Sigillus*, the *Explicatio*, and the *Ars reminiscendi*, ‘occasionality’ did not play a minor role, as demonstrated by the fact that the text was published in divergent versions (for example, the *Epistle to the Vice-Chancellor of the University of Oxford* is missing in some copies).³⁷ The fact that Bruno was able to publish a work of this caliber directly after arriving in England confirms that the meditation carried out in that work is rooted in the research on mnemotechnics that he developed in France, where he began to tackle the ontological problems to which the *Sigillus* is a remarkable attestation. To draw sharp demarcations and divide Bruno’s thought into neatly separate phases is both a theoretical and a historiographical mistake.

Let us reaffirm another general consideration that concerns all Bruno's œuvre and sheds light on the way he prepared his works for printing, which made the work of typographers and interpreters arduous. Bruno's mnemotechnical writings often include different materials: Notes for lessons, drafts of broader writings, works of circumstance (such as the *Epistle to the Vice-Chancellor*), and materials that Bruno gathered with greater or lesser consistency (depending on the circumstances) with a constant eye on the historical context and on the polemic targets that he chose each time. This is not necessarily true for all of his works, of course. Some (though they resulted from a long meditation) are written—or rewritten—in one session, as was the case with *Cena de le Ceneri* (though different versions exist). It is Bruno himself who reveals his *modus operandi*, as can be seen from his words in *Cabala*, or in *Eroici furori*, where he talks about a *cartaccio* which he resolved to publish “after I disposed, not of all my thoughts, but only of a bundle of writings.”³⁸ Here, he explains why he decided to entitle this dialogue *Eroici furori*, instead of *Cantica*: In order to prevent criticism by those who would accuse him of using texts originally meant to celebrate “vulgar and natural loves”³⁹ for “heroic” purposes, he uses a ‘pre-emptive defense’ that clearly reveals the nucleus of truth inherent to the criticism. In light of what has been said, this is not surprising and corresponds to the method usually adopted by Bruno—that which also makes the interpretation of his works difficult.

In this regard, the relevance of the mnemotechnical works and their specific systematic function stand out: Bruno accumulates materials concerning the *ars* from the beginning of his activity, constantly transforming them according to the development of his theories and keeping them ‘in a drawer’—if necessary—as in the case of his magical works. He prepared them for print only when he believed that the occasion was propitious, such as in 1592 when he decided to publish *De imaginum compositione*.

However, there are not only ‘scientific’ reasons at the root of this action and this oft-neglected point is crucial to understanding the nature and ‘form’ of his texts (including the Italian Dialogues). Bruno was a professor. Not only was the *ars* one of the main subjects of his teaching (in public as well as in private), it was also a way to make a living. After publishing the *De imaginum compositione*, Bruno went back to Venice to teach Giovanni Mocenigo the *ars*, rather than the new cosmology of the infinite universe and innumerable worlds. This was what the Venetian patrician requested to study under him “the secrets of memory and the others that he [...] professes.”⁴⁰ Mocenigo eventually denounced him to the Inquisition because he was disillusioned (this is telling of Mocenigo's expecta-

tions about the *ars memoriae*, as is his reference to Bruno's other 'secrets' when asking Giovan Battista Ciotti, the intermediary between Mocenigo and the Nolanus, for information in Frankfurt).

In sum, the *ars memoriae*, from whatever standpoint we may look at it, is a sort of 'continued base' which accompanies Bruno's entire career from its beginning to Bruno's fatal decision to return to Italy. If we look at the modalities and timing of their publication, the mnemotechnical works are an exceptional medium for understanding Bruno's view and opinion both on the situations in which he found himself and on the philosophical and the practical projects that he intended to undertake.

Thinking through images: this is the hidden *fil rouge* of the *nova filosofia*, from which the threads of the *ars memoriae* depart in a spiral movement. As explained in the recent commentary to the *Explicatio*: "Reason cannot do without using images, because they are the only medium to reality".⁴¹ 'Conceptual abstraction,' as highlighted above, can only be reached through the perception of experience within the faculty of fantasy.

It is necessary to point out that Bruno is not the first Renaissance philosopher to stress the importance of images: Ficino, an author of central importance for the Nolanus, for example. Demonstrating theoretical autonomy and originality, Bruno interprets and even distorts the Ficinian source. He carries out a profound 'revolution,' rethinking and reassessing the meaning of images, widening their semantic field to include the entire fantastical-mnemonical realm.

In Renaissance culture, however, the universe is very often considered a perpetual refraction of images, as a reflection of the whole of reality on different levels. There is a universal interconnection substantiated by a single light diffused in every aspect of reality and the wise man is exactly he who is able to get into this rhythm of light—tying 'sky' and 'earth' with images and dominating nature through the stars. In a famous passage, Proclus originally states: "The teachers of hieratic art discovered the way of honoring the higher entities based on what they had before their eyes, appropriately mixing some elements and eliminating some others. If they mix them, it is because they observed that each of the separate elements retains some quality of the deity, but is not sufficient to evoke it; thus, mixing several different elements, they join the above-mentioned influences and with this sum of elements they compose a single body similar to the unity preceding the dispersion of the parts. So they often create, with mixtures of this sort, images and scents, blending the previously separate symbols in a single body and artificially producing whatever the divinity essentially comprehends in himself, gathering the multiplicity of potencies which

lose their effectiveness when separated, but when combined, reproduce the form of the model.”⁴²

Here, the reference is to magic ‘images,’ with which Bruno explicitly deals in the *De imaginum compositione*, a work where a close and innovative link is established between the theory of images and the meditation on magical practice. This is a pivotal element, as demonstrated by the fact that in 1592 Bruno highlights the continuity between mnemotechnics and magic and systematically endeavors to “turn an art originally meant to meet specific operative needs into a method for disclosing the access to the structure itself of reality”; the art of memory is “an extraordinary training and workshop where different potencies learn to cooperate, continuously moving from the surface to sense, from shadow to traces of light.”⁴³

It is almost superfluous to state that the *De imaginum compositione* represents the final result of a long-lasting research project that began ten years earlier (in 1582) in a rather different conceptual framework, passing through the filter of the magical works composed in Germany during the latter half of the 1580s. Finally, let us draw some conclusions about this group of issues.

Among the aspects that are most striking to the reader of the mnemotechnical works, the first is the fact that we are dealing with powerful ‘machines,’ great and complex instruments that are not easy to understand precisely for their deliberate, strictly technical nature. Bruno is the first to insist on this point: When asked by the Venetian Inquisitors the reasons the king of France wanted to meet him, he explicitly focused on this aspect: “King Henri III called me one day, asking if the memory I had and professed was natural or due to magic arts; I answered to his satisfaction and from what I told him and made him try, he realized that it was due not to magic crafts but to knowledge”⁴⁴ (it is almost superfluous to note that, in this case, the reference to ‘magic art’ has a negative connotation, alluding to a paraphernalia of tricks and expedients good for deceiving ignorant and coarse people).

Bruno is particularly attentive to the technical dimension of his *ars*, to its ‘scientific’ (and consequently demonstrable and teachable) character. As we mentioned before, his works often originated as drafts for public and private lessons, but are defined by the theoretical foundation (i.e., the theory of being) on which they are based. A technique, indeed, but also a philosophically-grounded technique able, as such, to overwhelm and vanquish traditional *artes*. Using a ‘seal’ dear to Bruno, we could say that the theory is the ‘tree’ from which stem the branches of the *ars* that, at the same time, bestows meaning on the *ars* and gives it its roots.

We read in the commentary on the *Explicatio* that: “It is not enough to use the different seals (that is, the mnemotechnical expedients suggested by them) in order to organize the mnemonic material according to specific modalities; it is necessary to understand their functioning in depth, and comprehend the ‘mechanisms’ which animate them, so as to figure out their ‘formula,’ namely the technical and theoretical principles on which they are based.”⁴⁵

This is the reason why it is possible, or rather unavoidable, when reading the mnemotechnical works, to come upon the structural constituents of the *nova filosofia*, which are also the founding principles of Bruno’s theory on mnemotechnics (from the vision of shadow to that of natural vicissitude and universal metamorphosis; from the idea of the mutual connection of each thing to each other thing to that of the structural and bi-univocal relation between the infinite plasticity and changeability of the ‘fantastic’ potency and matter, and the ordinative, yet creative, power of the intellect;⁴⁶ from the relation between the natural ‘unity’ and the ‘innumerable differences,’ which we have to master—as he explains in his magical texts), if we want to establish a truly functioning *ars*, able to decipher and see into the structure of reality, and understand the ‘principles’ that determine its infinite transformations.⁴⁷ In this context, Bruno’s strong encyclopedic interests—revolving around the principles of order, proportion, interdependence, and regularity—should not be neglected, as they are interests that lead him to deal with the theories of the Lullian tradition that interlaced, in an innovative and fruitful way, mnemotechnics and the combinatorial (in Bruno’s vision, the art of Lull is aimed precisely at achieving a complexity of effects that imitates the manifold and perpetual course of natural becoming).⁴⁸

In summary, it is in the mnemotechnical works where what would become the ‘generative cells’ of the *nova filosofia* begin to sprout, along with the linguistic constellation that denotes this philosophy. ‘Shadow,’ ‘image,’ ‘seal,’ ‘mirror,’ and ‘portrait’: These all are interconnected moments of the same conceptual and lexical series, which also explicitly recurs with reference to gnosiological issues when the analysis is orientated toward ontology or magic. On both levels, the mnemotechnical works give way to the progressive focalization (also marked by important conceptual shifts) of the central points of Bruno’s philosophy, starting with the idea of the infinite universe. His mnemotechnical works strongly contribute to the creation of these points and, at the same time, reflect them step-by-step, moment-by-moment. In this sense, they really are the *Urtext* of the *nova filosofia*. Lately, the intrinsic theatrical character of Bruno’s œuvre has

been stressed,⁴⁹ but it is not necessary to read the *Candelaio* or the *Cantus Circaeus* to verify the accuracy of this interpretation: it suffices to read the *Explicatio* to see the structural connection between the creative process of ‘images’ and scenic representation. Although these works are very complex and refined, they also are charming theatrical performances based upon complex mental ‘plays’ and fascinating symbolic exercises. This is just one example (though many others could be provided): For instance, the relation between the *Sigillus* and the *De la causa*, the text in which Bruno fully develops his ontological perspective. In *De la causa*, especially in the second dialogue, he discusses again the views concerning intellect (and ‘form’) that he had developed in the *Sigillus*, laying the foundation for the concept of Life-infinite matter.

At the same time, the deep transformations to which Bruno subjects his *artes* until *De imaginum compositione* are striking. One thing is the *De umbris*, another is the *Sigillus*, although they are published barely a year apart. Both differ from the *De imaginum compositione*, the work that “represents the highest point in Bruno’s mnemotechnics” since “it is most similar to his vision of nature and the universe, which is founded upon the interdependence of all things—unified by the underlying pattern of prime substance and ceaselessly transformed by the infinite vicissitudinal movement.”⁵⁰

However, we have already dwelt at length on this point, explaining its speculative as well as historical reasons: *sat prata bibere*. Instead, it is useful to close this chain of reasoning by returning to the initial consideration about the necessity of dropping outdated interpretations of the Renaissance in order to understand and appreciate the value of complex works like Bruno’s. Without a new vision of the Renaissance—one that goes beyond the ‘city walls’ of the burckhardtian *arx* (a periodization which is obviously symbolic)—it would be impossible to bring these writings to the foreground. This was Aby Warburg’s fundamental contribution to the Brunian studies: Warburg did not confine himself to a general meditation on the Renaissance but, on the wake of his new conceptual positions, intended to study the œuvre and figure of Bruno in a systematic way. Thanks to his friendship with Ernst Cassirer, he had been ‘thunderstruck’ by direct reading of Bruno’s writings (and, in fact, in discovering their common theoretical and historiographical interest, Cassirer dedicated his *Individuum und Kosmos in der Philosophie der Renaissance* [1927], the tenth volume of the *Studien der Bibliothek Warburg* series, to Warburg.)

In a letter to Toni Cassirer dated March 6, 1929, Warburg outlines his working plan: his intention is to organize a meeting of historians and art

historians in order to discuss the figure of Giordano Bruno as a ‘thinker through images.’⁵¹ Some fragments of his research are still extant, being “entrusted to a notebook with a black cover, bearing the title of *Giordano Bruno*” and consisting of “45 pages of notes and observations written between the autumn of 1928 and June 1929, during his stay in Rome with Gertrude Bing.”⁵² This material, now made available to scholars,⁵³ is of extreme interest. However, shortly after writing this letter and embarking on his project, Warburg passed away and could not accomplish this plan. Even so, his intuition about ‘thinking through images,’ is still at the center of the research on Bruno’s philosophy and still represents a necessary touchstone, on a conceptual as well as historiographical level. The interest in Bruno’s mnemonics, as attested to by the recent publication of his mnemotechnical works, arises from a belief similar to that of Warburg. Better still, it aspires to be the confirmation of the intuition that crossed Warburg’s mind almost a century ago.

BIBLIOGRAPHY

Primary sources

- Bruno, G. *Corpus iconographicum. Le incisioni nelle opere a stampa*. Ed. M. Gabriele. Milan: Adelphi, 2001.
- . *Dialoghi filosofici italiani*. Ed. M. Ciliberto. Milan: Mondadori, 2000.
- . *Dialoghi italiani*. Eds. G. Gentile and G. Aquilecchia. Florence: Sansoni, 1958.
- . *Jordani Bruni Nolani Opera latine conscripta*, 3 vols., 8 parts. Eds. F. Fiorentino, F. Tocco, H. Vitelli, V. Imbriani and C. M. Tallarigo. Naples/Florence: Morano/Le Monnier, 1879–91. Reprint Stuttgart/Bad Cannstatt: Frommann, 1961–62.
- . *Opere latine*. Ed. C. Monti. Turin: Utet, 1980.
- . *Opere mnemotecniche*, vol. 2. Eds. M. Ciliberto, M. Matteoli, R. Sturlese and N. Tirinnanzi. Milan: Adelphi, 2009.
- Calvino, I. *Lezioni americane*. Milan: Garzanti, 1988.
- Cusano, N. *Opere filosofiche*. Ed. G. Federici-Vescovini. Turin: Utet, 1972.
- Warburg, A. “Giordano Bruno.” Eds. M. Ghelardi and G. Targia. *Cassirer Studies* 1 (2008): 29–58.
- Warburg, A. and E. Cassirer. *Il mondo di ieri. Lettere*. Ed. M. Ghelardi. Turin: Aragno, 2003.

Secondary sources

- Ciliberto, M. “Bruno e l’Apocalisse,” in *L’occhio di Atteone. Nuovi studi su Giordano Bruno*, 63–94. Rome: Edizioni di storia e letteratura, 2002.
- . *Giordano Bruno. Il teatro della vita*. Milan: Mondadori, 2007.
- . *Umbra profunda. Studi su Giordano Bruno*. Rome: Edizioni di storia e letteratura, 1999.

- Ciliberto, M. and N. Tirinnanzi, eds. *Il dialogo recitato. Per una nuova edizione del Bruno volgare*. Florence: Olschki, 2002.
- Firpo, L. *Il processo di Giordano Bruno*. Ed. D. Quagliioni. Rome: Salerno, 1993.
- Garin, E. “Le elezioni e il problema dell’astrologia,” in *L’età nuova. Ricerche di storia della cultura dal XII al XVI secolo*, 423–47. Naples: Morano, 1969.
- Mann, N. “Denkenergetische Inversion: Aby Warburg and Giordano Bruno.” *English Goethe Society* 72 (2003): 25–37.
- Rossi, P. *Un altro presente. Saggi sulla storia della filosofia*. Bologna: Il Mulino, 1999.
- Tirinnanzi, N. “Temi apocalittici nel *Sigillus sigillorum* di Giordano Bruno.” *Rinascimento* 48 (2008): 335–49.
- Tocco, F. *Le opere latine di Giordano Bruno esposte e confrontate con le italiane*. Florence: Le Monnier, 1889.

NOTES

* English translation by Olivia Catanorchi.

- 1 “Why, I say, do so few understand and apprehend the internal power? [...] He, who in himself sees all things, is all things.” Bruno, *Opera latine conscripta* II, 3, 90.
- 2 In *De minimo* (precisely in the epistle of Johann Wechel to the prince Henry Julius of Braunschweig), we find “crucial information for the comprehension of Brunian iconography and of its genesis”: “Opus aggressus est, ut quam accuratissime absolveret, non schemata solum ipse sua manu sculpsit, sed etiam operarum se in eodem correctorem praebuit”. (As it has been remarked, “the verb *sculpere*, with reference to old prints, is a specific technical lemma used to indicate the activity of the person who engraves the wood or metal with a chisel or a gouge, or copies the drawing on the plate”.) Cf. Bruno, *Corpus iconographicum*, XCVII. For *De minimo*, cf. Bruno, *Opera latine conscripta* I, 3, 123. (Translations, unless otherwise specified, are mine).
- 3 On this subject see, among others, Rossi, *Un altro presente*.
- 4 Bruno, *Opere mnemotecniche* II, 359.
- 5 Bruno systematically insists on this point: for example in such an emblematic text like *Acrotismus Camoeracensis*: “Quod igitur imaginatio quidlibet infinitam ad molem persequitur, non fallitur: sed altius naturam imitatur, et ad veritatem appellit, [...] ad veritatem inquam primi intellectus, qui non potest intelligere nisi unum, neque potest intelligere nisi infinitum” (Bruno, *Opera latine conscripta* I, 1, 119; a valuable translation of this work, by Barbara Amato, is forthcoming).
- 6 Bruno, *Opere mnemotecniche* II, 388.
- 7 Ibid.
- 8 Ibid., 916.
- 9 Ibid.
- 10 Ibid., 885–86.
- 11 Ibid., 886.
- 12 Cf. *De immenso*, VIII, in Bruno, *Opera latine conscripta* I, 2, 295sqq.; Bruno, *Opere latine*, 790sqq.
- 13 Bruno, *Dialoghi filosofici italiani*, 819–20.

- 14 *De beryllo*, in Cusano, *Opere filosofiche*, 647; but this is just an example: many other passages could be quoted about this aspect of Cusanus's thought.
- 15 Bruno, *Dialoghi filosofici italiani*, 921.
- 16 *Ibid.*, 806.
- 17 *Ibid.*, 946.
- 18 *Ibid.*
- 19 Tocco, *Le opere latine di Giordano Bruno*, 369, note 4. See also Bruno, *Dialoghi italiani*, II, 1159.
- 20 Bruno, *Dialoghi filosofici italiani*, 206.
- 21 *Ibid.*
- 22 *Ibid.*, 207.
- 23 *De beryllo*, in Cusano, *Opere filosofiche*, 647.
- 24 Bruno, *Dialoghi filosofici italiani*, 317–18.
- 25 Firpo, *Il processo di Giordano Bruno*, 268.
- 26 Bruno, *Dialoghi filosofici italiani*, 331.
- 27 *Ibid.*, 398.
- 28 *Ibid.*
- 29 *Ibid.*, 316.
- 30 *Ibid.*, 283.
- 31 *Ibid.*, 99.
- 32 First Calvino stresses the importance of *sinus phantasticus*, conceived as a “mundus quidam et sinus inexplabilis formarum et specierum” (a world or a gulf, which can never be filled, of forms and images); then he observes that to draw on this gulf of potential multiplicity is essential to any kind of knowledge. The mind of the poet and, in some decisive moments, the mind of the scientist, works according to a process of association of images that represents the quickest way to connect and pick a choice among the infinite forms of what is possible and impossible: “Fantasy is a sort of electronic machine that considers all the possible combinations and chooses those that are most suitable to a purpose, or simply the most interesting, pleasant and enjoyable ones”: cf. Calvino, *Lezioni americane*, 91. I focused on this passage from Calvino, and on other significant passages from Carlo Emilio Gadda, in Ciliberto, *Umbra profunda*, 321–22.
- 33 Bruno, *Opere mnemotecniche* II, 229–31. On the presence of apocalyptic motifs in *Sigillus* cf. Ciliberto, *Giordano Bruno*, 190–95 and Tirinnanzi, “Temi apocalittici nel *Sigillus sigillorum* di Giordano Bruno.” For a general overview, see Ciliberto, “Bruno e l’Apocalisse”, 63–94.
- 34 Bruno, *Opere mnemotecniche* II, 306.
- 35 Bruno, *Dialoghi filosofici italiani*, 824–25.
- 36 Bruno, *Opere mnemotecniche* II, 926.
- 37 Cf. Ciliberto, *Giordano Bruno*, 174–79.
- 38 Bruno, *Dialoghi filosofici italiani*, 675.
- 39 *Ibid.*, 758.
- 40 Firpo, *Il processo di Giordano Bruno*, 150.
- 41 Bruno, *Opere mnemotecniche* II, 387.
- 42 For this text and a commentary on it, see the important essay by Garin, “Le elezioni e il problema dell’astrologia”, 427–428.

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- 43 Bruno, *Opere mnemotecniche* II, 905.
 - 44 Firpo, *Il processo di Giordano Bruno*, 161–62.
 - 45 Bruno, *Opere mnemotecniche* II, 377.
 - 46 Ibid., *Explicatio* 71, 2–22 and commentary.
 - 47 Ibid., *Explicatio* 76, 1–78, 17 and commentary.
 - 48 Bruno, *Opere mnemotecniche* II, 377–78.
 - 49 Cf. Ciliberto and Tirinnanzi, eds. *Il dialogo recitato*.
 - 50 Bruno, *Opere mnemotecniche* II, 926–27.
 - 51 For the Italian translation of this letter, see Warburg and Cassirer, *Il mondo di ieri*, 20.
 - 52 Ibid., 20–21.
 - 53 Warburg, “Giordano Bruno”, 29–58. Besides Warburg’s notes, the same volume, the first of the *Cassirer Studies*, also includes, at 149–200, the *Atti del seminario Warburg, Cassirer and Giordano Bruno “thinker through images”* (Naples, December 6, 2006). On Warburg and Bruno cf. also Mann, “Denkenergetische Inversion.”

ANNE EUSTERSCHULTE
Platonic Caverns and Epicurean Worlds

TEOFILO: [...] Or ecco quello, ch'ha varcato l'aria, penetrato il cielo, discorse le stelle, trapassati gli margini del mondo, [...] cossí al cospetto d'ogni senso e ragione, co' la chiave di solertissima inquisizione aperti que' chiostri de la verità, che da noi aprir si posseano, nudata la ricoperta e velata natura, ha donati gli occhi a le talpe, illuminati i ciechi che non possean fissar gli occhi e mirar l'imagin sua in tanti specchi che da ogni lato gli s'opponeno [...].

La cena de le Ceneri, FIRST DIALOGUE.¹

“Like criminals accustomed to the darkness, who, when freed from some dark tower, go out into the light, many of those trained in the common philosophy, and others too, will become frightened and awestricken, and being unable to endure the new sunlight of your clear conceptions, will become disturbed.”² Bruno’s dialogue *De la causa, principio e uno* begins with these words, spoken by Elitropio, which literally means ‘the one who turns towards the sun.’ With the purpose of attacking³ the short-sightedness—indeed, the blindness—of his contemporaries, Bruno often employs Plato’s allegory of the soul that lives in a cave and needs to be liberated in order to realize that the images in the cave are part of a world of artifice. Due to the important role the sun plays in Plato’s allegory of the cave, Bruno directs the allegory especially against scholastic Aristotelianism and the authority of the geocentric world-view. Like Plato, Bruno holds that forceful liberation from the caves of delusion is an act that is perilous to one’s own life. The blind will mockingly accuse the one trying to open their eyes of being blind himself, and they will even struggle to remain blind.⁴

“Although the helping hand of your pious zeal is succor to men alone, the reactions of the ungrateful against you will be none the less manifold; since various are the kinds of animals which the benign earth produces [...] For that reason, some, like the covered mole, will, just as soon as they feel the fresh air, look immediately for their native dark habitations again by

furrowing in the earth; others, like the night owls, as soon as they see the dawning of the reddish ambassador of the sun in the illuminated east, will feel themselves attracted by their dark place of refuge because of the weakness of their eyes.”⁵

With his allegory of the cave, Plato formulates an analogy between the potencies of the soul (i.e., the “inner polis,” Resp., IX, 592a and X, 608b) and the structure of a political community in order to develop a normative definition of justice in light of the idea of the good.⁶ Bruno, for his part, employs Plato’s analogy of the cave in order to formulate a relation between epistemology and cosmology. Here, the potentially infinite, albeit enchained, consciousness is related to an enchained truth concerning the universe as an infinite space containing innumerable worlds. Bruno does not formulate a political philosophy or a utopian republic, but rather the theory of a philosophical way of life. It is here that the Platonic periagogue becomes relevant (Resp., 515d). The soul must be led to see with the eye of reason. This is exemplified in the text *Spaccio della bestia trionfante*. The metaphysical revision of cosmology corresponds to a reform of the “heaven of virtues,” and justice plays a crucial role in this. For Bruno, the Olympian god Zeus represents the spiritual soul of man, which, in its materialization, is exposed to the eternal stream of matter and therefore also exposed to the most changeable of sensual affects. Nevertheless, it is still capable of concentrating upon a virtuous life.

“The very same (Zeus) is conceived of as a ruler and mover of the sky, in order to allude to the fact that in every human being, in every individual, there is a world, a universe, in which Zeus, the ruler, represents the light of the intellect that rules within him, within this marvelous architect, and governs and distributes the order and the seat of the virtues and vices.”⁷ The soul is like a republic within which reason rules over the virtues. In this analogy, Plato’s understanding of a reform of the soul’s bad government is reflected (Resp., IX, 579b). Bruno portrays himself as a liberator who brings light into the obscurity of the mental caves. A first step towards this light is the discussion of Copernicanism.

THE COPERNICAN TURN—BRUNO’S REVISION OF THE COPERNICAN COSMOLOGY

In *La cena de le ceneri*, Bruno formulates his philosophy of the infinite contrary to Copernican doctrine. In *De la causa*, he explicates the philosophical prerequisites for his metaphysics of the One. In both texts, the

reference to the Platonic analogy of the cave plays a crucial role in announcing the liberation of the soul from intellectual limitation. Alluding to Plato's *Phaidros*,⁸ the analogy of the cave is employed in order to give wings to the soul, so that it rises to the light of truth beyond the limitation of the heavenly spheres. Bruno interprets the soul's approach towards the eternal truth in terms of a breakout from the finite, closed cosmos.

In doing so, he operates with a subtle entanglement of different motifs. He refers to contemporary scientific breakthroughs and antique mythology alike, connects approaches of pre-Socratic and Platonic philosophy to the Hellenic tradition (Epicureanism, Stoa, Neoplatonism), and, not least of all, makes use of the oldest pagan teachings. Although Bruno does not consider himself a follower of Copernicus—he prefers to use his own eyes and his own judgement⁹—he does regard Copernicus as a pioneer. With their observations of heavenly phenomena and their theories, Copernicus and skilful mathematicians have supplied the prerequisites for judgement of the nature of the cosmos based on reason. Yet, mathematical astronomers are “like the interpreters who translate words from one language to another”¹⁰ without understanding them. Astronomy is an auxiliary science that is unable to judge phenomena, “for how could we make a judgment if the many and diverse verifications of the appearances [motions] of the higher and lower celestial bodies had not been clarified and placed before the *eyes of reason*?”¹¹

To Bruno, the astronomical way of looking at the stars is merely blind sight, much like that of the Theban Manto, “who saw but did not understand.” In order to see a deeper truth, it takes a seer who is blind to the facts of sensual observation, an interpreter like the blind Tiresias of antiquity: “Visu carentem magna pars veri latet.”¹² Although the true way of seeing also begins with physical phenomena, it cannot rely solely on the eyesight. In this reluctance to rely upon physical seeing, the Platonic doctrine of the soul is evident, according to which the visible is only the starting point of a successive realization of truth. Latently, a reference to Epicurean, or Lucretian, motifs is also extant. What is given, in a sensual sense, is not in itself deceptive; rather, the danger lies in drawing false conclusions from it. Bruno holds Copernicus' courage in swimming against the current in high regard. Against common presuppositions, Copernicus contested the dormant stance of the earth in the center of the cosmos and openly affiliated with heliocentrism. By doing so, he freed himself from blindness. Nevertheless, his emancipation lacks consequence: “he was not able to go deep enough and penetrate beyond the point of removing from

the way the stumps of inconvenient and vain principles [...] and to free both himself and others from so many vain investigations, and to set attention firmly on things constant and certain.”¹³

Bruno emphasizes, however, that Copernicus had restored the dignity of antique cosmology, the teachings of the old.¹⁴ That is why he praises him as “that dawn which was to precede the rising of the sun of the ancient and true philosophy (*antiqua-nova filosofia*), buried for so many centuries in the dark caverns of blind, malicious, arrogant and envious ignorance.”¹⁵ It is again an allusion to the Platonic cave that Bruno employs here in order to re-establish the Platonic teachings against the errors of scholasticism and its mistrust of antique philosophy. Still, “what is to be done about the one who found again the way to scale the skies, to make a tour of the spheres, of the planets, and leave behind the convex surface of the firmament?”¹⁶ Bruno conceives of himself as being the true discoverer who has found the way leading beyond the closed cosmos. “The Nolan [...has] set free the human spirit and cognition which was retained in the narrow prison of the turbulent [earthly] air, from where as if through some holes it could contemplate the most distant stars; its wings were cut lest it should fly and open the veil of these clouds, to see what is really there.”¹⁷ Bruno’s liberation of reason is an attempt to spark “that light, which turned the souls of our ancestors divine and heroic.”¹⁸ The discovery of the cosmos’s infinity, the delimitation of the physical universe beyond the horizon of the visible, is at the same time an opening of the *eyes of reason* for the divine nature. Under the guidance of the eye of divine intelligence, human spirit sees the world with different eyes.

The described celestial journey is a programmatic conception of the philosophy of the infinite.¹⁹ Universal nature reveals itself in the universe in infinite reflections. These are the manifestations of the divine cause, which unfolds itself everywhere from the unity of matter in corporeal forms. The infinite worlds testify to the power of the divine unity, which operates everywhere, enlivens everything, and lets everything evolve, passing through the center of matter.²⁰ All physical phenomena point to an immanent divine cause. This also accounts for the human soul. “And thus we possess the instruction to look not for the divinity away from us: if we have her nearby, we have her inside us, in fact more so than we are within ourselves.”²¹ This is a crucial passage for Bruno’s metaphysics of the infinite One.²²

BRUNO'S RECEPTION OF EPICUREANISM
AND LUCRETIANISM

An antique source to which Bruno refers in his works is the teaching of Epicurus, which had been passed on by Lucretius. This influence is apparent not least of all in Bruno's adaptation of the didactic poem as a literary form, which he establishes in his late Latin writings with explicit reference to Lucretius.²³ Unlike its influence on the poetic theory of the Renaissance, the influence that Epicureanism, or Lucretianism, had on the natural philosophy of the period is only vaguely understood. With respect to a medieval reception, sources besides Lactantius and Isidore of Sevilla are scarce.²⁴ The fact that Epicurus and all of his pupils are to be found in Dante's vision of Hell serves as a condemnation of the Epicurean notion that the soul dies with the body.²⁵ During the Renaissance, however, Epicureanism gained importance through Lorenzo Valla.²⁶ A discussion of the moral philosophy of the teachings of Epicurus found its expression, for example, in the writings of Thomas Morus²⁷ and Michel Montaigne. Nonetheless, the atomistic conception of nature also bore considerable influence on thinkers of the sixteenth century—before the seventeenth century, when Gassendi began to advocate an atomic theory that was shaped by Epicureanism.

In *The Ash Wednesday Supper*, Bruno himself refers to his reading of Epicurus by way of Diogenes Laertius. *De vita et moribus philosophorum* was published for the first time in a Latin translation in 1475,²⁸ and it has been re-edited many times in partly revised versions.²⁹ Besides the editions of Diogenes Laertius, Bruno makes use of Hellenistic testimonials (Seneca, Cicero) and the didactic poem by Lucretius. The manuscript of *De rerum natura* was discovered by Gian Francesco Poggio at the beginning of the fifteenth-century in a German monastery³⁰ and was translated in Italy, where a discussion of the work took place based on the original text.³¹

Lucretius's didactic poems contain a number of motifs which Bruno integrated into the outline of his philosophic system. Still, Bruno does not simply build on Epicurean Atomism. Rather, he derives several argumentations in order to combine them with (Neo-)Platonic approaches. In the judgement of the history of science, this transformation has occasionally led to the evaluation of Bruno's philosophy and cosmology as being unscientific, because it connects heterogeneous philosophemes.³² From this point of view, Bruno's syncretism remains far behind the modernity of Galileo. However, if we desist from evaluating Bruno's philosophy according to the later developments in scientific insight, it becomes evident how

crucial the teachings of Epicurus and Lucretius are for Bruno's thought. In accordance with the antique model, natural philosophy, epistemology, and moral philosophy are systematically connected and reinforce each other.

THE INFINITY OF THE UNIVERSE: BRUNO'S ATOMISTIC SUBSTRUCTURE OF COSMIC LIFE

In reference to the Epicurean teachings, Bruno establishes the delimitation of cosmic space, which contains infinite worlds or world-systems. Whereas the universe itself is infinite, an ongoing metamorphosis of corporeal modes of appearance occurs within this whole. The elements of Epicurean natural philosophy receive a metaphysical foundation and are reinforced by a (Neo-)Platonic understanding of the soul. According to Lucretius, the continuous change in things is not restricted to an Aristotelian, sublunary world, but extends to all physical processes. The planets are not exempt from this. The celestial bodies are not unchangeable and do not move in eternal orbits. They, too, are subject to change and decay. On the macroscopic level, this metabolism affects the mutual nourishment between the worlds of water and fire. "Thus, the universe becomes differentiated into fire and water, which are subject to two primary, formal and active principles, the cold and the hot."³³ In the infinite universe, an immense ethereal region, countless suns and earths all move. These "great animals [...], in order to communicate with one another and to participate in one another's vital principle, complete their gyrations, at certain spaces, at given distances, some around others."³⁴ Every celestial body possesses an inner principle of life and movement. All animate bodies move around the body from which they attempt to receive power. "Now this distinction [separation] of bodies in the ethereal region was known to Heraclitus, Democritus, Epicurus, Pythagoras, Parmenides, Melissus, as those fragments which we possess make it manifest to us; thus, it is clear that they knew of an infinite space, infinite region, infinite forest [mass], infinite capacity of innumerable worlds, and the like. These complete their orbits as the earth does its own, and, therefore, in antiquity were called *etherea*, that is runners, messengers, ambassadors, envoys of the magnificence of the sole most high, that temper with musical harmony the order of the constitution of nature, [this] living mirror of the infinite deity."³⁵ Bruno connects heterogeneous conceptions of antique natural philosophy in order to prepare a fundamental revision of Aristotelianism and to argue against the theory of an unmoved mover and the *primum mobile*. Unmistakably, Stoic

theorems are also present at this point.³⁶ Hence, Bruno explicitly departs from the mechanistic kinematics of Epicurus. The emphasis upon a ubiquitous substantial exchange and upon the sustainment of life serves as a source for Bruno to illustrate the harmonizing power of an omnipresent soul that is at work in all things.

This understanding of the cosmic organism determines the interpretation of the Epicurean atomic theory. On the micro level, Bruno follows Epicurus inasmuch as he bases every corporeal change upon the movement, composition, and decomposition of atoms in infinite space. To Lucretius, the imperishable *primordia rerum* (atoms) and the void (*inane*)—to be equated with space (*spatium*), place (*locus*), and vacancy (*vacans*)³⁷—form the basis of all possible transformations. Similarly, Bruno postulates that the whole universe remains One,³⁸ while all things within the Universe are subject to permanent change. Like Lucretius, Bruno postulates an indivisible minimum³⁹ which forms the imperishable basis for all possible elementary complexions (constitutions of body or mind based on certain combinations) and dissolutions. For Bruno, however, a purely materialistic, mechanistic, kinematic view does not provide a sufficient basis for an explanation of the universe.⁴⁰ While Lucretius disputes the existence of divine providence and an order of the universe based on reason, Bruno holds these metaphysical assumptions to be irrefutable.

For Bruno, the world is animated, similar to a cosmic living being. But the *vis animae*,⁴¹ as Lucretius calls it, is not only an ethereal complexion, but the immaterial agency of life and movement, through which reason communicates itself to things. Bruno makes use of the Neoplatonic triad of *Hen—Nous—Psyche*. Although he concedes many important insights to the Epicureans—indeed, he uses them to refute scholastic Aristotelianism—Bruno contests the materialism of Late Antiquity.

“Democritus, then, also the Epicureans, say that that which is not corporeal is nothing; and, consequently, they hold matter alone to be the substance of things [...] The same philosophers, along with the Cyrenaics, the Cynics, and the Stoics, hold that the forms are nothing else but certain accidental dispositions of matter. And for a long time, I myself have been an adherent to this conception, only because it has a foundation more corresponding to nature than the views of Aristotle; but after having more maturely considered, and after having regarded more things, we find that it is necessary to recognize in nature two kinds of substance: one of which is form, the other of which is matter.”⁴² In Bruno’s understanding of matter—which must be “called the divine and excellent progenitor, generator, and mother of natural things; or, in substance, the entire nature”⁴³—the

notion of *natura omniparens* or *natura rerum creatrix*⁴⁴ or *daedala rerum*⁴⁵ found in Lucretius is present. Nature's unlimited progenitive power is also the reason for the insufficiency of its individual products. "Matter hates its present form in proportion to its love of the form that it does not have."⁴⁶

Unlike the material an artist starts with, the matter underlying all corporeal transformations is not visible. Because it is the precondition of all bodies and shapes, it is itself without form and corporeal quality. Therefore, it is only to be perceived "with the eyes of reason."⁴⁷ Whoever does not understand this, is afflicted with mental blindness. Here, too, Bruno distinguishes between blind seeing and intellectual evidence.⁴⁸

In contrast to the (Aristotelian) primacy of form, Bruno formulates a complementarity of matter and form, because "the Nolan wishes to express: that there is one intellect that gives being to everything; this is called by the Pythagoreans and Timaeus the giver of forms; that there is one soul and formal principle that becomes and informs everything; this is called by those aforementioned ones the fountain of forms; that there is one matter out of which everything is produced and formed; this called by all the receptacle of forms."⁴⁹

On the basis of this interpretation of the Platonic *Timaios*, Bruno is able to distinguish three different aspects that cooperate within this living "body of nature" or "rational animal": "First, the universal intellect inherent in things; second, the vivifying soul of all; third, the substratum."⁵⁰ Bruno often employs an imagery that illustrates the procreative relationship and the mutual dependency of two principles in the sense of a cosmic Eros. Here, paternal intellect and maternal matter are combined. As they are potencies, intellect and matter entertain a relationship of inclusion. The intellect operates from the innermost of matter in terms of a fertilizing progenitor. Communicated by the soul of the world, fertile matter gives birth to individual corporeal shapes. Matter is not primarily a passive, malleable substrate, but rather an active potency, able to become anything. "Hence, if there always has been the potency to make, to produce, to create, there always has been the potency to be made, to be produced, to be created; because the one potency implies the other; I want to say that one being posited, it necessarily posits the other."⁵¹ From a metaphysical point of view, in the first, absolutely consummate cause, there is a coincidence of absolute possibility and actuality. Altogether and at once, it is *Complicative*. The Universe is an image of the infinite One, because it is not everything at once and everywhere everything, but the infinite potential in a multiplicity of individuations, diversifications, and modifica-

tions within an infinite process of explication.⁵² Every individuation expresses the One in a contracted mode of actualization. In order to be able to be everything that is possible, it has to undergo the fullness of possible forms in a successive, potentially infinite process of transformation.

Mindful of the coincidence of potency and actuality, form and matter within a substance—which, to the human intellect, is only conceivable in the form of a negative theology—Bruno strongly re-evaluates the principle of matter. “To conclude, then, you see how great the excellency of that potency is, which if it pleases you to call it the essence of matter [...] you can treat in a higher meaning than Plato has done in his *Republic*⁵³ and in his *Timaeus*, without subtracting from the divinity.”⁵⁴ The Epicureans provided important prerequisites for this, but they also failed to understand the intelligible conditions, “they have never elevated themselves above material quality.”⁵⁵ Bruno refashions the teachings of the Epicureans in a Platonic way. At the same time, however, this alters the (Neo-)Platonic background. In Bruno’s philosophy of an infinite universe—which does not know of an extramundane, intelligible world—the soul of the world is not conceivable independently of its immanence in matter, just as it does not make much sense for Bruno to speak of matter that is not operative by virtue of the soul. This metaphysically founded natural philosophy is connected to questions of moral philosophy and epistemology.

BLINDNESS AND TRUE SEEING—THE INSIGHT OF THE TRUTH

In Bruno’s writings, blindness virtually becomes a symbol for folly, lack of apprehension, or other modes of infatuation. The latter pertain to forms of indoctrination and vanity, inadequate contemplation, and, above all, a fearful closing of the eyes to truth. Thus, a central motif of Epicurean philosophy becomes the interface to the Platonic allegory of the cave. Due to a fear of seeing the uncovered truth, the blind cling to the myths of gods, theological ideas of an afterlife, and scientific fictions, struggling aggressively against those seeking to disenchant these phantasms.

The role the Epicurean theory of perception and its epistemology plays is illustrated exemplarily in the controversy on Copernicanism in *The Ash Wednesday Supper*. Bruno explicitly employs the Epicurean theory of perception in order to deprive the opponents of Copernicanism of their basis of argument. The fulcrum is the preface of Copernicus’ *De Revolutionibus*, in which the anonymous publisher (Andreas Osiander) attempts to miti-

gate Copernicus' heliocentric cosmology, including the theory of epicycles. "Let us, therefore, take the treasure of these suppositions, solely for the marvelous and artificial facility of computations: for, if someone would take as true these feigned things, he would exit more stupid from this science than when he entered."⁵⁶ Bruno confronts this reduction of Copernicanism to a merely hypothetic conception and argues against the idea that the planet Venus would have to change its perceptible size according to perigee and apogee if it moved in an epicyclical orbit. Here, Bruno refers to his own principles of "true optics and geometry."⁵⁷ Although he honours his spiritual ancestors (such as Copernicus, Pythagorean astronomers, Plato in *Timaeus*, or the divine Cusanus), he emphasizes that he has "more solid principles, by which, not through authority but through real evidence and reason, he has this for as certain as anything else that can be had for certain."⁵⁸ According to these principles, the perception of the diameter of a planet largely depends on its intensity of brilliance.⁵⁹ From the point of view of the history of science, Bruno's optical theory is "merely an exercise in fantasy" which "shows his megalomania and his misconceptions about science."⁶⁰ In the first place, however, Bruno is interested in showing that perceptions, at first sight, cannot be falsified by geometrical arguments, or that the former are not coextensive with the latter. It is because of this that geometrical calculations remain mere assumptions. In order to strengthen his argument, Bruno refers to Epicurus's letter to Pythokles and the 11th book of *De natura* according to Diogenes Laertius, in which Epicurus holds the opinion "that (as far as he can judge) the size of the sun, of the moon, and of other stars [planets] is as great as appears to our senses."⁶¹ This view is underpinned by the respective verses from Lucretius's *De rerum natura*:

The wheel of the sun cannot be much larger
Nor its glow less than is perceived by our senses.
For from whatever distances fires can project light
And breathe warm heat upon our bodies
They diminish nothing by these intervals from their mass of flame
And the fire is made no narrower to the eye.⁶²

Similar problems are extant in the perception of the moon⁶³ and that of all celestial bodies.⁶⁴ Bruno quotes extensively the Epicurean poets with regard to these questions. Although the description of these phenomena is not of any scientific value in the ultimate instance, it clearly shows that

Bruno's reference to Lucretius cannot be dismissed as a mere whim. Rather, the reference to Lucretius points towards the status of perception or Epicurean epistemology in his thinking.

Considered in their context, the verses of *De rerum natura* V propose the view that, scientifically, and mathematically exact, certain insights about the nature of astronomical phenomena cannot be accomplished. Lucretius points out repeatedly that certainty can hardly be achieved with respect to natural phenomena: "For which of these causes holds in our world it is difficult to say for certain (*nam quid in hoc mundo sit eorum ponere certum / difficile est*); but what may be done and is done through the whole universe in the various worlds made in various ways, that is what I teach, proceeding to set forth several causes which may account for the movements of the stars throughout the whole universe; one of which, however, must be that which gives force to the movement of the signs in our world also, but which may be the true one, is not his to lay down who proceeds step by step (*pedetemptim progredientis*)."⁶⁵ While the theory of the atoms and of the infinite void space provide the foundation for a mechanistic understanding of nature or a cosmology that is independent from the exercising of divine power, statements about the behaviour of concrete cosmic phenomena can only claim probable validity. Nevertheless, their accordance with sensory perception remains the criterion for the validity of explanatory theories.⁶⁶ If interpreted in terms of a sceptic theory, Bruno's unconventional optics and geometry can be understood as an attempt to critically question the range of mathematically-based physical science in the tradition of Epicurus/Lucretius and to confirm the infinity of the Universe by descriptions of phenomena that are no less plausible. Thus, Bruno's metaphysical mathematics is not based upon scientific methods of measurement and calculation, but refers to the speculative teaching of Cusanus, who stresses the symbolic character of mathematical investigations.

That is why the main argument of Aristotelian cosmology, the concept of a finite cosmos, has to fail from the outset, as it is constructed on the validity of sensory perception. We do not see any border of the Universe: "But we who set our sight not on fantastic shadows but at the very things, we who envision an aerial, ethereal, spiritual, liquid body capable of motion and of rest, though infinite and immense (this we must affirm at least because we do not perceive any limit either sensibly or rationally)."⁶⁷

In Bruno's thinking, the *eye of reason*⁶⁸ or intellectual insight is crucial. Although sensory perception represents only a first step, according to the

criterion of Epicurus, it must not interfere with the conclusions of reason. "No corporeal sense can perceive the infinite. [...] It is the part of the intellect to judge, yielding due weight to factors absent and separated by distance of time and by space intervals. And in this matter [concerning the infinity of the universe] our sense-perception doth suffice us and doth yield us adequate testimony, since it is unable to gainsay us."⁶⁹ Explicitly referring to the Epicurean poet, Bruno argues, "none of our sense-perceptions is opposed to the acceptance of infinity, since we cannot deny infinity merely because we do not sensibly perceive it [...] Moreover, if we consider well, sense doth present to us an infinite universe. For we perceive an endless series of objects, each one contained by another, nor do we ever perceive either with our external or our internal sense, an object which is not contained by another or similar object. 'Lastly before our eyes one thing is seen to bound another [...] yet in truth there is nothing outside to limit the universe ... so far on every side spreads out huge room for things, free from limit in all directions everywhere.'"⁷⁰ Sensory perception confirms the infinity of the Universe. The Aristotelian theory of space, on the other hand, is in a contradiction of sensory perception and reason. This theory implicitly raises the question about entities that are located outside the enclosed world. Bruno formulates his famous thought experiment thusly: If we follow the Aristotelian concept of space, this would imply "that if a person would stretch out his hand beyond the convex sphere of heaven, the hand would occupy no position in space nor any place, and in consequence would not exist."⁷¹ This line of thought, too, is a reference to Lucretius, who, by virtue of the infinite stretching out of the Universe, denies the existence of an outside and shows the senselessness of such an assumption using the example of a flying lance. "Besides, if all the existing space be granted for the moment to be finite, suppose someone proceeds to the very extremest edge and cast a flying lance, do you prefer that the lance forcibly thrown goes whither it was sent and flies afar, or do you think that anything can hinder and obstruct it? For you must confess and accept one of the two; but each of them shuts you off from all escape, and compels you to own that the universe stretches without end. [...] and wherever you place your extremest edge, I shall ask what at last happens to the lance. The effect will be that no boundary can exist anywhere, and that room for the weapon's flight will always prolong its flying."⁷²

Epicurean theory of perception and epistemology lead to the moral philosophical consequences of atomist physics.

THE STRUGGLE AGAINST ANXIETY—PSYCHOLOGY
OF COGNITION AND FEAR

Lucretius celebrates Epicurus as a god who introduced the teaching of life (*ratio vitae*), which is called sagacity (*sapientia*), and “who by his skill brought life out of those tempestuous billows and that deep darkness, and settled it in such a calm and in light so clear (*quique per artem / fluctibus et tantis vitam tantisque tenebris / in tam tranquillo et tam clara luce locavit*).”⁷³ For this reason, the teaching of Epicurus is regarded as a doctrine of successful living (*Eudaimonia*), which purifies the heart, bestows consolation and tranquillity, and liberates the heart from fears, torturing desires and the ravages of uninhibited passion. Adhering to the notions of Epicurus, Lucretius sketches the conditions that have to be met in order to achieve such a tranquillity of the soul (*ataraxia*). The insight into the necessity of nature liberates the soul from vain delusions such as the fear of gods and punishment in an afterlife. Hence, one has to understand one’s fixedness to the necessity of nature and to the temporality of physical life. The challenge is to accept the fact that the soul of the mortal body grows with this body and also vanishes with it, and that all bodies within the Universe, ranging from the human being right up to the planets, are subject to these material transformations. Teleology or divine providence is nowhere to be found in this Universe, since, for Epicurus, the blissful life of the gods is characterized by effortlessness (“*deos securum agere aevum*,” Lucretius, *De rerum natura*, V, 82). By contrast, one can state the (Neo-)Platonists’ argument as follows. The gods do not care about the world. Seas, continents, and skies go under. As it says in the famous verses of Lucretius, “one day shall consign to destruction; the mighty and complex system of the world, upheld through many years, shall crash into ruins” (*una dies dabit exitio; multosque per annos sustentata ruet moles et machina mundi*; V, 95sq.). The insight into this inevitability is therapeutic for the soul. It appeals to the human heart, to the *templa mentis* (V, 103). It takes away the fear of the workings of an unknowable will of the gods, of divine judgment and atonement, and does away with the idea that the soul could continue to exist if it is separated from the body (V, 140sq.). Like Epicurus, Lucretius advocates the love for life (*amor vitae*, V, 179), which however is not to be mistaken with hedonism. The insight into the order of nature—i.e., “the mother of all [...] seen also to be the universal sepulchre (*omni-parens eadem rerum commune sepulcrum*)”—or the boundaries of nature (*foedera naturae*, V, 259, 310) shatters the pipe dreams of fear and hope.

Bruno takes up this project of a banishment of fear. Where everything renews itself and nothing really vanishes, but merely passes through an infinite manifoldness of forms, no annihilation is to be feared. All corporeal decay is the turning point to the emergence of a new corporeal life form, metamorphoses of one infinite substance. "Here, too, is the reason of the constant change of all things, so that there existeth no evil beyond escape, nor good which is unattainable, since throughout infinite space and throughout endless change all substance remaineth one and the same. From these reflections, if we apply ourselves attentively, we shall see that no strange happening can be dismissed by grief or by fear, and that no good fortune can be advanced by pleasures of hope."⁷⁴

By virtue of *vicissitudo*, no kind of destiny is a fatality, no state is permanent, everything is transient. He, who understands continuous change as the quintessence of living nature and does not bind his heart to the transient, will be free from sorrow and adversity. This is the sketch of the heroic life which Bruno elaborates upon in *Gli heroici furori*.

For Bruno, the acknowledgement of infinite change is the way to "true morality" or to the practice of a spiritual stance that grants felicity. Not only is the position of the Earth at the center of the finite, Aristotelian cosmos removed from this concept of infinite space, but also the anthropology that is anchored in this cosmology. In this Universe, which is absolutely delimited, there features no metaphysical topography and no hierarchies. The individual is entirely on its own. It finds the divine principle in its own center. We have to search for this center, "and we shall follow the divine laws which are engraved upon our hearts."⁷⁵ Here, the transformation of Lucretius' natural philosophy becomes apparent. The causal *nexi* within the infinite bear witness to an infinite divine principle. They are effects of a universal intellect that determines the dynamics of life by means of the soul of the world. Being whole in the whole and whole in all parts, the immanent divine One is closest to the soul which transcends itself towards this principle. That is why the divine is paradoxically also the most remote: it is transcendent in immanence.⁷⁶ Since the infinite unity is detached from all rational understanding, it behaves towards us through an infinite distance. Here, the concept of Cusanus concerning the disproportion between the finite and the infinite is echoed. In reference to Plato's *Timaios*, or the Neoplatonic tradition (Plotinus), the unconditional communication of the One by itself is, for Bruno, an expression of the benevolence that communicates itself by means of the universe and governs the universe in its entirety. Bruno combines the Lucretian concept of the infinity and imperishability of cosmic happen-

ings with the idea of an all-embracing benevolence—which, however, with respect to its cosmic dimensions, does not nourish any individual expectations of happiness.

“Behold us therefore beyond reach of jealousy, liberated from vain anxiety and from foolish concern to covet from afar that great good which we possess close by and at hand. Behold us moreover freed from panic lest others should fall upon us, rather than encouraged in the hope that we may fall upon them. [...] When we have pondered and understood this, ah, how much further shall we be led to ponder and understand. Thus, by means of this science, we shall certainly attain to that good which by other sciences is sought in vain. For here is the philosophy which sharpeneth the senses, satisfieth the soul, enlargeth the intellect and leadeth man to that true bliss to which he may attain, which consisteth in a certain balance, for it liberateth him alike from the eager quest of pleasure and from the blind feeling of grief; it causeth him to rejoice in the present and neither to fear nor to hope for the future.”⁷⁷

According to the Epicurean-Lucretian doctrine, philosophy, as the art of living, implies the liberation from transient, earthly goods and promises of happiness, as well as insight into the limits of cognition. These are prerequisites for the tranquillity of the soul. Nevertheless, Bruno does not ascribe physical happenings to material necessity, but binds them to the idea of the good. “And since we are all subject to a perfect Power, we should not believe, suppose or hope otherwise, than that even as all issueth from good, so to all is good, through good, toward good; from good, by good means, toward a good end.”⁷⁸ First and foremost, the perfection of a universe that continuously renews and regenerates itself is only a small solace with respect to the question about the continued existence of the individual soul after death. On the basis of Epicurean teachings, there is no re-embodiment of the soul, and Bruno, too, is more inclined to interpret the doctrine of metempsychosis rather in terms of a metamorphosis.⁷⁹ It is necessary to enjoy the fullness of the living universe and the imperishability of universally animated matter. “Thus, Democritus and Epicurus, who maintained that everything throughout infinity suffereth renewal and restoration, understood these matters more truly”⁸⁰ than Aristotle and his pupils. For Bruno, the theory of a universally enlivened, infinite Universe is the only one that does justice to the majesty of the divine cause. According to this theory, phantasms can no longer “imprison our spirit under the custody of

a Pluto or at the mercy of a Jove.”⁸¹ This liberation from the caves of fear requires a heroic character. The soul does not find tranquillity, but rather is characterized by extreme tonicity. This sounds like a farewell to Epicurean *ataraxia*, however, Bruno teaches us to read Epicurean therapy of the soul in a different way. He understands it as the way of a heroic consciousness.

MORAL PHILOSOPHY AND STATE OF THE SOUL—ATARAXIA AND INNER CONFLICT

According to Lucretius, it is a humanity weighed down by the fear of gods against which a daring Greek has risen.⁸² Epicurus braves the scenarios of a punishing god. He was the “first of all men, to shatter the confining bars of nature’s gates. Therefore, the lively power of his mind (*vivida vis animi*) prevailed, and forth he marched far beyond the flaming walls of the world (*moenia mundi*), as he traversed the immeasurable universe (*immensum*) in thought and imagination (*mente animoque*); whence victorious he returns bearing his prize, the knowledge what can come into being, what can not, in a word, how each thing has its powers limited and its deep-set boundary mark.”⁸³

In these words, one can recognize a transformed version of the Platonic allegory of the cave.⁸⁴ Bruno, too, considers himself such a rebel who breaks through the barriers that keep the mortals in fear, in order to traverse infinite space and bring true insight into the processes of nature to mankind.⁸⁵ One can apply the image sketched by Lucretius to Bruno’s concept of the heroic man. In *Gli heroici furori*, it becomes apparent how, against the backdrop of cosmic infinitism, the (Neo-)Platonic concept of an ascent of the soul towards truth undergoes a transformation. The insight into the infinity of the Universe becomes an existential experience for consciousness. To the extent that every point in infinity can be the center, and every up and down only has a relative significance, the pursuit of the highest unity does not only lose its sense of direction. The object of the pursuit is infinitely far away. It flees just as quickly as it is approached, and it is the object of a never-ending movement. In light of the infinite movement of an approximation towards the ultimate truth, the consciousness experiences its own universal capacity in the sensual abundance of the world. One has to find the object of the pursuit (i.e., God) in the depth of one’s own soul. Ultimately, the theme of eternal circumambulation is a self-rotation of the passionately desiring soul which never comes to rest. By the use of drastic images, allegories, and symbols, Bruno gets to the bottom of this feeling of dispar-

ity. The model of an unfulfilled love that drives the philosophical Eros is central here. The soul struggles with itself, is carried away by the sensual beauty of the manifold, but tries to leave that behind in order to give itself exclusively to the divine object and to imitate it. Over and over, Bruno draws here on (Neo-)Platonic motifs. "The frenzies of which we speak [...], do not arise from forgetfulness, but from remembrance. They are not undirected frenzies, but love and desire for the beautiful and the good, a model of perfection one proposes to attain for himself by being transformed into its likeness. It is not a rapture of one caught in the snare of bestial passion under the law of an unworthy fate, but a rational force following the intellectual perception of the good and the beautiful comprehensible to man to whom they give pleasure when he conforms himself to them."⁸⁶

Bruno draws one's attention to the disjointedness of the soul. He analyses the antagonism of the forces of the soul, which the soul argues with when faced with an infinite object that cannot be rationally grasped at all. "[C]onfused by the abyss of divinity, sometimes he gives up the contest. Then, he returns, nevertheless, and forces himself to attain by his will what he cannot attain by his reason."⁸⁷ Staggering between the attractive forces of a twofold Eros, the heroic soul gloats thoroughly over this feeling. "Although the beatific object is infinite, and in act perfectly simple, and although our intellective potency is unable to comprehend the infinite, except in speech or in a certain manner of speaking, or as otherwise said, by a certain potential reason and natural disposition, he of whom we speak does not differ from one who would aspire toward the immeasurable as an end where, in fact, there is no end."⁸⁸ The heroic soul confronts this paradox of an unreachable and yet insatiably desired object. The soul is never content with a state, never ceases from orbiting, because the object itself is infinite. "For it ever realizes that everything it possesses is a limited thing which for that reason cannot be sufficient in itself, good in itself, or beautiful in itself, because the limited thing is not the universe and is not the absolute entity, but is contracted [...]. As a result, from that beautiful which is comprehended, and therefore limited, and consequently beautiful by participation, the intellect progresses toward that which is truly beautiful without limit or circumscription whatsoever."⁸⁹

The Neoplatonic doctrine of the ascent of the soul is being transformed into an infinite circular movement. The process of approximation cannot be completed. In this metaphysical movement, the subject experiences itself as infinite. This movement "is not from the imperfect to the perfect, but it goes circling through the degrees of perfection to reach that infinite center which is neither form nor formed."⁹⁰ Although the infinite object can neither be

grasped by the intellect nor, in spite of the perseverance of the will, be overtaken, the passion of the movement is itself an act of self-transcendence.

The understanding of infinite dynamics does not easily calm the soul, but rather puts it in a state of tonicity that is self-torturing and libidinous at once. Bruno conceives of himself as a faithful interpreter of Epicureanism. The tranquillity of the soul is a state of inner strength that can only be achieved with utmost effort. Beatitude is to be experienced as constancy and steadfastness in the movement.

“There is an aphorism of Epicurus which, if understood properly, would not be judged so profane as the ignorant think it; for it does not deny virtue [...] and takes nothing from the perfection of constancy, but rather adds something to that perfection which the vulgar comprehend; for he believes the true and complete virtue of sturdiness and constancy is not the constancy which resists discomforts and puts up with them, but the constancy which takes them upon oneself without feeling them. He does not hold perfect, divine and heroic the love which feels the spur, the bit, remorse or pain caused by that vulgar kind of love, but heroic that love which abolishes any sense of other affections [...] and this is to reach the highest beatitude in this state, to have desire and not have any sense of pain.”⁹¹

The heroic attitude of the soul pursues its dedication to the highest good and liberates itself from all habitual affects. Bruno calls this “putting up with it with hardiness” and “Epicurus calls it, torment without feeling it.”⁹²

The heroic passion abandons consumptive, corporeal love, because the earthly Venus fools the lover with phantasms. In reference to the expressive verses of the Epicurean poet, Bruno depicts this desperate endeavour.⁹³ The Lucretian warning about the phantasms of love makes one think of the twofold Eros in Plato’s *Symposium* and the ascent to bodiless beauty. By referring to Lucretius, however, Bruno is chiefly able to illustrate the aspect of pain, self-deception, and deprivation. The subject here is a form of love delirium which causes the most radical deprivation due to the phantasm of fulfilment. “As when in dreams a thirsty man seeks to drink, and no water is forthcoming to quench the burning in his frame, but he seeks the image of water, striving in vain, and in the midst of a rushing river thirsts while he drinks: so in love Venus mocks lovers with images.”⁹⁴ The corporeal joy does not allay the longing for divine things. A finite indulgence remains that even feeds the painful feeling of deprivation. “But it is fitting,” Lucretius formulates for Bruno, “to flee from images, to scare away what feeds love [...] For the sore quickens and becomes inveterate by feeding, daily the madness takes on and the tribulation grows heavier.”⁹⁵

In contrast to this, the love for the true divine unity is an elevation of the soul in order to become one with the divine spirit. Combined with Lucretius's damnation of corporeal love, the Epicurean concept of *ataraxia* can now be read "in the light of Plotinus' views on the elimination of affections and the mystical union. [...] The heroic lover, like the Epicurean wise, will be free from the disturbance of emotion in our everyday sense, and motivated by emotions (intellectual love) which have been transformed by a total restructuring of the beliefs that sustain them."⁹⁶

But with the (Neo-)Platonic doctrine of Eros, which is explicated here in the tradition of the Epicurean concept of *ataraxia*, Bruno particularly accentuates the process of an unfulfilled, but nevertheless joyful pursuit. Hence, for Bruno, it is not necessary to rigorously condemn the attractions of the sensual-corporeal world, but to appreciate them as signs of an introduction to this sublime, intelligible beauty. The sensual world is a vestige, a mirror, and an analogy of a non-conceptual, inconceivable unity. "For this reason the heroic spirit constantly renews its efforts, as long as it does not see itself uplifted toward the desire of the divine beauty in itself, that is, the beauty without similitude, analogy, image or species, if such a beauty were possible; and if it were possible for the heroic spirit to know how to attain it."⁹⁷ Bruno is far from condemning every earthly beauty or corporeal voluptuousness. On the contrary, it is the *conditio humana* to perceive the world with senses and corporeal passion—not by clinging to finite things or literally locking one's jaws about them, but understanding them as an analogy. At first sight, this is again a Platonic line of thought, however, the accent lies on the sensual-corporeal existence. We cannot completely escape from our own corporeality. Corporeal things, too, are living images of God, because "God, the divine beauty and splendour, shines and is in all things; but to me it does not seem erroneous to admire him in all things according to his mode of communication."⁹⁸

In this way, the heroic love is moved by these messages from God and, at the same time, is torn apart due to a luminousness that does not give satisfaction, because it awakens an ever-growing desire for an undifferentiated union which, in turn, can only be experienced in terms of antagonisms, "for nothing results from an absolutely uncontested principle, but everything results from contrary principles through the triumph and conquest of one of the contraries. There is no pleasure of generation on the one hand without the displeasure of corruption on the other."⁹⁹ To the highest degree, this applies to human existence itself, because "in the same subject the feeling of delight and sadness is found at the same time." In the

feeling of this tonicity, consummation arrives “by the pleasure of what destroys him bringing him content in the midst of torment and torment in the midst of every contentment.”¹⁰⁰

At best, the tranquillity of a union can be experienced in the form of momentary evidence. To the finite subject, the highest unity shows itself only in the fluctuation of forms and shapes, in the flipover of opposites. The soul is in a permanent state of transition. For Bruno, who repeatedly refers to the moral philosophy of the Epicureans,¹⁰¹ the soul is heroic if it withdraws from the crowd and from public reputation in order to commerce only with the best. “If this man desires the highest splendour, he retires as much [as he can to the one and withdraws within himself as much] as possible, so that he may not be like the multitude of men who constitute the majority; and he would not be their enemy [...] He converses with those whom he can make better, or those who can make him better, by the light he can give them, or the light they can give him. [...] Nor does he believe he has achieved little when he has become wise in himself, for he remembers the words of Democritus, *Unus mihi pro populo est, et populus pro uno*, and those words which Epicurus wrote to a fellow student, *Haec tibi, non multis; satis enim magnum alter alteri theatrum sumus*.”¹⁰² This is the ideal of the wise, who despises the crowd in order to concentrate only on unique, prime, and singular intelligence. Yet, where does the heroic soul find this prime wisdom? “For example, would it be by turning towards the stars, or the empyrean, or the crystalline heaven?”¹⁰³ Under the (Epicureically founded) preconditions of infinite space, there is no exposed sphere of the intelligible. Bruno virtually corrects a misunderstood Neoplatonic concept of spiritual ascent. It is not a way upwards, but inwards. The soul has to proceed “to the depths of mind; and in order to accomplish this, it is not at all necessary to gaze wide-eyed toward the sky, to raise one’s hands, to direct one’s steps toward the temple [...] but it is necessary to descend more intimately within the self and to consider that God is near, that each one has Him with him and within himself more than he himself can be within himself, for God is the soul of souls, the life of all lives, the essence of essences.”¹⁰⁴

The wise braces himself for external hardship and the onrush of affects. Seneca’s letter to Lucilius reinforces this moral philosophical therapy of the soul. It is a combination of the Epicurean ideal of the wise and the Platonic doctrine from which Bruno’s guidelines for the heroic frenzies are derived. If one considers the embodiment of the soul, one sees it is confronted with pain, passions and sensual confusion. A state of happiness can be achieved because the “soul is in his body in such a way that its superior

part may be removed to join and attach itself to divine things as by an indissoluble vow. In that state he will feel neither hate nor love of mortal things, for he will prefer to be the master rather than the servant and slave of a body he regards as nothing more than a prison which holds his liberty in chains, snare which entangles his wings [...] a veil which obscures his vision. But at the same time he will not feel himself a servant [...] and blind, because his body will not tyrannize over him any more than he himself allows it to, for now his body will be subjected to his spirit in the same way that matter and the corporeal world are subject to the divinity and to nature. Therefore, he will render himself strong against fortune, magnanimous before injuries, dauntless against poverty, diseases, and persecutions.”¹⁰⁵ In this way, the heroic soul comes “out of the Platonic cavern.”¹⁰⁶

PHILOSOPHICAL IMPLICATIONS

This approach does not imply a condemnation of the sensual world or of the affective striving of the soul as it is echoed in Plotinus’ thinking or in the Stoic concept of apathy. The interactivity of the principles of form and matter can be translated to the condition of the human soul—i. e., to the relation between appetitive and cognitive faculties (will and intellect). “[T]he will is reawakened from sleep, given direction, urged and led by the cognition [...] reciprocally [...] the cognition is aroused, formed and revived by the will, the one proceeding from the other, alternately. [...] For just as the act of the will is infinite with respect to the good, so is the act of cognition infinite and endless with respect to the true: accordingly, being, truth and goodness take on the same significance, when they are referred to in the same way, that is: as infinite goals.”¹⁰⁷ The passionate longing of the senses and striving for knowledge, the experience of the world in its sensual abundance and contrariness, and the reflection of an incomprehensible metaphysical principle flow together in the soul and constitute its conflictive character. Yet, in the heroic state, this is a joyful experience of pain, an experience of the highest effort of cognition, which is at the same time highly emotional. “When all the affections are completely converted to God [...] the mind is exalted to the suprasensual unity, and is all love, all one, and it no longer feels itself solicited and distracted by diverse objects, but becomes one sole wound, in which all the affections gather to become one single affection.”¹⁰⁸ The combination of Epicureanism and Platonism that leads to a mutual transformation of philosophical concepts is not an arbitrary kind of syncretism. Natural phi-

losophy, epistemology, the doctrine of perception, and moral philosophy engage with each other. The purest form of striving for knowledge is a pleasurable sensation. It goes along with the enjoyment of life in action. With the postulation of a heroic attitude towards existence, Bruno builds on Epicurean maxims and the Platonic doctrine of Eros alike. The 'ascent' of the soul by passing through sensual abundance is at the same time a return of the soul to itself, to its divine foundation.

Only the visible world brings the consciousness to itself. In its infinite circumambulation towards an unreachable target, the soul experiences its inexhaustible productivity, its own plenitude, which becomes objectified in a consciousness that ceaselessly produces images. Bruno's anthropology is characterized by his understanding of this eternal movement in terms of a constitution of self-awareness, as well as his concept of the moral strength of the soul which is a requisite for life and which is aware of its ligation to the infinite. Hereby, an early modern theory of the self takes shape in Bruno's writings, and it represents an alternative model to the Cartesian self-certainty of the ego.¹⁰⁹

BIBLIOGRAPHY

Primary sources

- Bruno, G. *Dialoghi italiani*. Eds. G. Gentile and G. Aquilecchia. Florence: Sansoni, 1958.
- . *Jordani Bruni Nolani Opera latine conscripta*. 3 vols., 8 parts. Eds. F. Fiorentino, F. Tocco, H. Vitelli, V. Imbriani and C. M. Tallarigo. Naples/Florence: Morano/Le Monnier, 1879–91. Reprint, Stuttgart/Bad Cannstatt: Frommann, 1961–62.
- . *The Heroic Frenzies*. Ed. and trans. P. E. Memmo, Jr. Chapel Hill: Univ. of North Carolina Press, 1964.
- . "On infinite universe and worlds." In *Giordano Bruno: His Life and Thought*. Annotated translation. Ed. D. W. Singer. New York: Schuman, 1968.
- . *The Ash Wednesday Supper*. Trans. S. L. Jaki. The Hague/Paris: Mouton, 1975.
- Lucretius. *De rerum natura*. Trans. W. H. D. Rouse. Revised with new text, introduction, notes, and index by M. F. Smith. Cambridge/London: Harvard Univ. Press, 1975 (Loeb Classical Library 181).

Secondary sources

- Allen, D. C. "The Rehabilitation of Epicurus and His Theory of Pleasure in the Early Renaissance." *Studies in Philology* 41 (1944): 1–15.
- Ciliberto, M. *Pensare per Contrari: Disincanto e Utopia nel Rinascimento*. Rome: Storia e letteratura, 2005.
- Deufert, M. *Pseudo-Lukrezisches im Lukrez. Die unechten Verse in Lukrezens "De rerum natura"*. Berlin: De Gruyter, 1996.
- DiZenzo, S. F. *Un umanista epicureo del sec. XV e il ritrovamento del suo epistolario*. Naples: Delfino, 1978.

- Drücke, S. *Humanistische Laienbildung um 1500. Das Übersetzungswerk des rheinischen Humanisten Johann Gottfried*. Göttingen: Vandenhoeck & Ruprecht, 2001.
- Fellmann, F. "Heroische Leidenschaften und die Entstehung der philosophischen Anthropologie." In Bruno, G. *Von den heroischen Leidenschaften*. Trans. C. Bacmeister. Hamburg: Meiner, 1989.
- Gatti, H., ed. *Giordano Bruno: Philosopher of the Renaissance*. Aldershot: Ashgate, 2002.
- Gordon, C. A. *A Bibliography of Lucretius*. London: Hart-Davis, 1962.
- Hadzsits, G. D. *Lucretius and His Influence*. New York: Longmans, Green & Co., 1935.
- Jones, H. *The Epicurean Tradition*. London: Routledge, 1989.
- Koyré, A. *From the Closed World to the Infinite Universe*. New York: Harper, 1958.
- Maechler, B. *Montaignes Essais und das philosophische System von Epikur und Lukrez*. Zurich: Univ. Diss., 1985.
- Mendoza, R. G. "Metempsychosis and Monisms in Bruno's nova philosophia." In *Giordano Bruno. Philosopher of the Renaissance*. Ed. H. Gatti, 273–97. Cornell University Press, 2002.
- Monti, C. "Lukrezianismus und Neuplatonismus. Versuch einer theoretischen Synthese in den lateinischen Gedichten Giordano Brunos." In *Die Frankfurter Schriften Giordano Brunos und ihre Voraussetzungen*. Eds. K. Heipcke, W. Neuser and E. Wicke, 162–79. Weinheim: VCH, 1991.
- Radetti, G. "L'epicureismo nel pensiero umanistico del Quattrocento." In *Grande Antologia filosofica 6: Il pensiero della Rinascenza e della Riforma*, 839–961. Milan: Marzorati, 1964.
- Reeve, M. D. "The Italian Tradition of Lucretius." *Italia medioevale e umanistica* 23 (1980).
- Sandys, J. E. *A History of Classical Scholarship*. Cambridge: Cambridge Univ. Press, 1908.
- Scott, M. A. *Elizabethan Translations from the Italian*. New York: Houghton Mifflin, 1916.
- Spruit, L. "Bodily Arousal, Emotion, and Tranquillity in Bruno's *Eroici furori*." In *The Alchemy of Extremes: The Laboratory of the Eroici Furori of Giordano Bruno*. Eds. E. Canone and I. D. Rowland, 133–41. Pisa/Rome: Ist. Editoriali e Poligrafici Internazionali, 2007.
- Surtz, E. L. "Epicurus in Utopia." *A Journal of English Literary History*. Vol. XVI/2 (1949).
- Zeller, E. "Die Philosophie der Griechen in ihrer Geschichtlichen Entwicklung. III/1." *Die Nacharistotelische Philosophie*. Leipzig: n.p., 1923. Reprint Darmstadt: WBG, 2006.

NOTES

- 1 Bruno, *Dialoghi italiani*: "Now here is he who has pierced the air, penetrated the sky, toured the realm of stars, traversed the boundaries of the world [...] Thus aided by the fullness of sense and reason, he opened with the key of most industrious inquiry those enclosures of truth that can be opened to us at all; by presenting naked

- the shrouded and veiled nature, he gave eyes to moles, illumined the blind who cannot fix their eyes and admire their own images in so many mirrors which surround them from every side..." Bruno, *Ash Wednesday Supper* I, 61.
- 2 Bruno, *Cause, Principle, and One*, I, 90; *Dialoghi italiani*, 191.
- 3 See *Acrotismus Camoeracensis*, in *Opera latine conscripta* I 1, 66sq. and *La cena de le ceneri*, in *Dialoghi italiani*, 33.
- 4 Plato, *Politeia*, VII, 517a.
- 5 Bruno, *Cause, Principle, and One*, I, 90; Bruno, *Dialoghi italiani*, 192.
- 6 Plato, *Politeia*, II, 368d–369a.
- 7 Bruno, *Spaccio*; Bruno *Dialoghi italiani*, 560.
- 8 The motif of the winged soul is central to Bruno's anthropology and epistemology. He links Platonic soul myths and their Neoplatonic interpretations (Plotinus, Proclus, Pseudo-Dionysius).
- 9 Bruno, *Ash Wednesday Supper* I, 55; *Dialoghi italiani*, 27.
- 10 Ibid.
- 11 Bruno, *Ash Wednesday Supper* I, 56, emphasis mine. *Dialoghi italiani*, 27.
- 12 Seneca, *Oedipus*, 295. Bruno, *The Ash Wednesday Supper* I, 55; *Dialoghi italiani*, 27.
- 13 Bruno, *Ash Wednesday Supper* I, 57; *Dialoghi italiani*, 28.
- 14 Bruno, *Ash Wednesday Supper* I, 57; *Dialoghi italiani*, 28sq.
- 15 Bruno, *Ash Wednesday Supper* I, 58; *Dialoghi italiani*, 29.
- 16 Bruno, *Ash Wednesday Supper* I, 59; *Dialoghi italiani*, 31.
- 17 Bruno, *Ash Wednesday Supper* I, 60; *Dialoghi italiani*, 32.
- 18 Ibid.
- 19 See *Camoeracensis Acrotismus*, in Bruno, *Opera latine conscripta* I, 1, 67sq.
- 20 Bruno, *Ash Wednesday Supper* I, 62; *Dialoghi italiani*, 33.
- 21 Bruno, *Ash Wednesday Supper* I, 62; *Dialoghi italiani*, 33.
- 22 Bruno, *Camoeracensis Acrotismus* in *Opera latine conscripta* I, 1, 68sq.
- 23 See Monti "Lukrezianismus," 162–79.
- 24 See Maechler, *Montaignes Essais*, 2.
- 25 Dante, *Divina comedia*, Inferno, X, 13–15.
- 26 See Drücke, *Humanistische Laienbildung*, 121.
- 27 See Surtz, "Epicurus in Utopia."
- 28 Diogenes Laertius's *De vita et moribus philosophorum*, ed. Ambrosius Civenius (Venice, 1475, and Nuremberg, 1476 and 1479). In 1533, for the first time, a complete Greek edition was published by Froben in Basel.
- 29 In 1566, an emendated Latin edition was published in Antwerp by Christoph Plantin. In 1570 and 1594, the Cevenius translation with revisions by Henricus Stephanus and Isaac Casaubonus was published by H. Stephanus in Paris.
- 30 See Sandys, *History of classic scholarship*; Allen, "Rehabilitation of Epicurus."
- 31 See Deufert, *Pseudo-Lukrezisches*, 15sq.; Reeve, "Italian Tradition of Lucretius"; Gordon, *Bibliography of Lucretius*.
- 32 Koyré, *From the closed world*, 54.
- 33 Bruno, *Ash Wednesday Supper* IV, 129; *Dialoghi italiani*, 124sq.; Lucretius, *De rerum natura* V, 380sq.
- 34 Bruno, *Ash Wednesday Supper* IV, 134; *Dialoghi italiani*, 131.
- 35 Bruno, *Ash Wednesday Supper* V, 148sq.; *Dialoghi italiani*, 145sq.

- 36 See Cicero's description of Stoic physics, *De natura deorum*, II, 39–41.
- 37 Lucretius, *De rerum natura* I, 330sq; I, 426.
- 38 Bruno refers repeatedly to the Eleatics (Parmenides, Melissos).
- 39 Concerning the *minimum*, see Lucretius, *De rerum natura* I, 615sq., 625sq., 750sq.
- 40 In his Latin late writings (*De triplici minimo et mensura*, *De monade, numero et figura*, and *De immenso et innumerabilibus*), Bruno distinguishes a threefold minimum: metaphysical (monad), physical (atom), and mathematical (point).
- 41 Lucretius, *De rerum natura* V, 560sq.
- 42 Bruno, *Cause, Principle, and One*, III, 128; *Dialoghi italiani* 262.
- 43 Bruno, *Cause, Principle, and One*, IV, 156; *Dialoghi italiani* 311sq.
- 44 Lucretius, *De rerum naturae*, I, 629.
- 45 *Ibid.*, V, 234.
- 46 Bruno, *Heroic Frenzies*, I, 2, 101; *Dialoghi italiani* 978.
- 47 Bruno, *Cause, Principle, and One*, III, 130; *Dialoghi italiani* 266. "There is one matter under all the forms of nature [...] which can be seen with reason only." *Ibid.*, 131.
- 48 Bruno, *Cause, Principle, and One*, III, 132; *Dialoghi italiani*, 268.
- 49 Bruno, *Cause, Principle, and One*, III, 134; *Dialoghi italiani*, 272sq.
- 50 Bruno, *Cause, Principle, and One*, III, 135; *Dialoghi italiani*, 275.
- 51 Bruno, *Cause, Principle, and One*, III, 139; *Dialoghi italiani*, 280.
- 52 On infinity and contraction, see Nicolas of Cusa, *De docta ignorantia* I.
- 53 A reminiscence of the Platonic allegory of the cavern and the ontological and gnoseological gradation, respectively.
- 54 Bruno, *Cause, Principle, and One*, III, 142; *Dialoghi italiani*, 286.
- 55 Bruno, *Cause, Principle, and One*, III, 137; *Dialoghi italiani*, 278.
- 56 Bruno, *The Ash Wednesday Supper* III, 96sq.; *Dialoghi italiani*, 89.
- 57 Bruno, *The Ash Wednesday Supper* III, 99; *Dialoghi italiani*, 91.
- 58 *Ibid.*
- 59 Bruno, *The Ash Wednesday Supper* III, 100; *Dialoghi italiani*, 91sq.
- 60 See Jaki's commentary in Bruno, *The Ash Wednesday Supper* 99–100.
- 61 Bruno, *The Ash Wednesday Supper* III, 101; *Dialoghi italiani*, 93.
- 62 Lucretius, *De rerum natura* V, 564–69.
- 63 *Ibid.*, V, 575–77.
- 64 *Ibid.*, V, 585–95.
- 65 *Ibid.*, V, 526–33.
- 66 Cf. Epicurus, *De natura* XI, following Diogenes Laertius, X, 92sq.; Bruno *On the infinite universe* I, 251. See Zeller, *Die Philosophie der Griechen*, 425.
- 67 Bruno, *The Ash Wednesday Supper* III, 101; Bruno *Dialoghi italiani* 104; Lucretius, *De rerum natura* I, 998.
- 68 Cf. Bruno, *On the infinite universe* I, 254.
- 69 *Ibid.*, I, 251; Bruno, *Dialoghi italiani*, 369.
- 70 Bruno, *On the infinite universe*, introductory epistle, 232sq.; *Dialoghi italiani* 349; Lucretius, *De rerum natura* I, 998–1000, 1006–1007.
- 71 *Ibid.*, I, 253; Bruno, *Dialoghi italiani* 371. Cf. *ibid.*, introductory epistle, 231, quoting Lucretius, *De rerum natura* I, 968–79.
- 72 Lucretius, *De rerum natura* I, 968–83. Cf. *De immenso*, *Opera latine* I, 1, 277; Bruno, *Infinito*, *Dialoghi italiani*, 373; Monti, *Lukrezianismus*, 166.

- 73 Lucretius, *De rerum natura* V, 9sq.
- 74 Bruno, *On the infinite universe*, introductory epistle, 243; *Dialoghi italiani*, 359.
- 75 Bruno, *On the infinite universe*, 243sq.; *Dialoghi italiani*, 359.
- 76 Bruno, *The Ash Wednesday Supper*, I, 62.
- 77 Bruno, *On the infinite universe*, introductory epistle, 244; *Dialoghi italiani*, 360.
- 78 Ibid.
- 79 Mendoza, "Metempsychosis and Monism," 293sq.
- 80 Bruno, *On the infinite universe*, introductory epistle, 245; Bruno, *Dialoghi italiani*, 361.
- 81 Bruno, *On the infinite universe*, 246; *Dialoghi italiani*, 362.
- 82 Lucretius, *De rerum natura* I, 62–67.
- 83 Ibid., I, 70–77.
- 84 See Ibid., III, 1–3, 14–18.
- 85 See Monti, *Lukrezianismus*, 166.
- 86 Bruno, *The heroic frenzies*, I, 3, 108; *Dialoghi italiani*, 987sq., with allusions to Plato's *Phaidros* and *Symposion*.
- 87 Bruno, *The heroic frenzies*, I, 3, 110; *Dialoghi italiani*, 989.
- 88 Bruno, *The heroic frenzies*, I, 3, 116; *Dialoghi italiani*, 997.
- 89 Bruno, *The heroic frenzies*, I, 4, 128sq.; *Dialoghi italiani*, 1012.
- 90 Bruno, *The heroic frenzies*, I, 4, 129; *Dialoghi italiani*, 1012.
- 91 Bruno, *The heroic frenzies*, I, 5, 163; *Dialoghi Italiani*, 1052. Cf. Epicurus, letter to Idomeneus.
- 92 Bruno, *The heroic frenzies*, I, 5, 164; *Dialoghi italiani*, 1054.
- 93 Bruno, *The heroic frenzies*, II, 1, 186. Cf. Lucretius, *De rerum natura* IV, 1094–1111.
- 94 Lucretius, *De rerum natura* IV, 1097–1101.
- 95 Bruno, *The heroic frenzies*, I, 5, 174; *Dialoghi italiani*, 1064sq.; Lucretius, *De rerum natura* IV, 1063sq., 1074.
- 96 Spruit, "Bodily arousal," 140.
- 97 Bruno, *The heroic frenzies*, II 1, 185; *Dialoghi Italiani*, 1077.
- 98 Bruno, *The heroic frenzies*, II, 1, 185; *Dialoghi italiani*, 1078.
- 99 Bruno, *The heroic frenzies*, II, 1, 187; *Dialoghi italiani*, 1079sq.
- 100 Bruno, *The heroic frenzies*, II, 1, 187; *Dialoghi italiani*, 1080. See Lucretius, *De rerum natura* IV, 1077sq.
- 101 Cf. Seneca, Epistle 7.
- 102 Bruno, *The heroic frenzies*, II, 1, 192sq; *Dialoghi italiani* 1086. Cf. Seneca, Epistle 7, 10–11.
- 103 Bruno, *The heroic frenzies*, II, 1, 193; *Dialoghi italiani*, 1087.
- 104 Ibid.
- 105 Bruno, *The heroic frenzies*, II, 1, 195; *Dialoghi italiani*, 1088sq.
- 106 Bruno, *The heroic frenzies*, I, 3, 119; *Dialoghi italiani*, 999sq. See Plotinus, *Enn.*, IV, 8, 1.
- 107 Bruno, *The heroic frenzies*, Argument, 71; Bruno, *Dialoghi italiani*, 941.
- 109 Fellmann, "Heroische Leidenschaften," XXVI.

PART 2

Experience and Vision of
a New Cosmic Order: Giordano Bruno's
Natural Philosophy

MIGUEL ÁNGEL GRANADA

De immenso et innumerabilibus, I, 3 and
the Concept of Planetary Systems in the
Infinite Universe. A Commentary

Dispositio synodorum ex mundis in universo. Distinctio inter astra
lucentia per se et per aliud. Cur planetae, qui sunt circa alios soles,
non videntur.

Ut solem hunc circa Tellus, Luna, aliger Hermes,
Saturnus, Venus, et Mavors, et Juppiter errant,
et numerus fasso major, nam caetera turba
partim pro vicibus, partim non cernitur unquam,
sic circum fit quemque alium: nam lege necesse est
naturae, flammis fomentum sumere ab undis.
Maximu' quando hic vult circum undique multa minora
mutuum, ut vires immittant, atque remittant
proficuas; ubi conveniens distantia pacem
conciliat; nam de adversis vita atque nutrimentum
devenit, harmonicis quia seposita intervallis
concurrunt, motusque vagos contemperat aestus.
Sic circum unumquemque Phoebum cytharoedum
plures discurrunt Nymphae choreasque frequentant,
quas vegeto sensu, ac clara ratione videmus,
quando unam ad normam venit abstans atque propinquum
nec variat numerus primorum principiorum
conformem in speciem ut nequeant coalescere ubique.

De immenso et innumerabilibus, BOOK I, CHAPTER 3.¹

Published in Frankfurt in 1591, Giordano Bruno's *De immenso et innumerabilibus* is the last and the most mature and complete exposition of his cosmological ideas. However, the significance of this work does not concern only the cosmological and physical domain, since it contains also a lucid presentation of Bruno's vindication of philosophy as the proper path to human perfection and intellectual happiness through the scientific

knowledge of nature and, thereby, to the union with God. This theological dimension results from nature being the necessary and infinite expression of God, from which it follows that true knowledge of the foundations of nature allows man to know God and to 'communicate' with Him. Thus, Bruno liberates philosophy from subordination to religion, restores its dimension as a path to the divinity proper to the 'perfect man,' and proceeds to a criticism and denunciation of the imposture and subversion of values introduced by Christian religion. This theological and anthropological dimension of philosophy is presented in full in the two initial chapters (I, 1–2) of *De immenso* and in the conclusion.²

Given the character of these preliminary chapters, the importance of the third chapter of the first book, on which I will now comment, becomes even more evident. When Bruno presents his cosmological conception, it is with the verses I have chosen that he starts. This means that the points established in these verses are, in large measure, the fundamental tenets of his cosmology. Of course, the infinity of the universe as a necessary product of God and the expression of God's infinity has already been established in the first chapter.³ Now, with our verses, Bruno begins to present the structure of the infinite universe and affirms that it consists in an (infinite) repetition of "synodi ex mundis", which we have translated as "planetary systems." Each *synodus* is formed by a central star or sun and a set of planets (also called 'waters,' 'earths,' and, in our verses, 'nymphs'), including also comets as a kind of 'planet rarely visible.'⁴ This is the information provided in the title of the chapter ("Disposition of planetary systems in the universe"), which adds that the two components of the *synodus*⁵ (or system) differ in the sense that the central sun or star shines by itself (its principal element being fire) and the planets (composed mainly of earth and water) shine in so far as they reflect the light of their sun from the surface of their seas, i.e., they shine "by another agent." The title includes one further point—a point that is not considered in depth here, but is, nevertheless, important enough to be mentioned here in these preliminary remarks: "why planets around other suns are not visible." In the course of this chapter, Bruno says the reasons for this are the following: firstly, the smallness of the planets and, secondly, the fact that their light is reflected⁶ (he adds later in the work a third reason: their immense distance from us).⁷

Of course, it could be observed that all these points had already been established in the Italian dialogues (*La cena de le Ceneri* or *De l'infinito universo e mondi*) or in his cosmological works published previously in Germany in 1588 (the *Camoeracensis acrotismus* or the *Articuli adversus mathematicos*). Nevertheless, the formulation in *De immenso* has a special

relevance and prominence due both to its placement at the very beginning and to its accomplished formulation: clear, neat and expressed in few words or verses.

The points just mentioned above constitute Bruno's most important contribution to the proceeding cosmological revolution since Copernicus had put the Earth in motion. For the two millennia before Bruno, the traditional image of the cosmos had been that of a finite cosmos surrounded by a sphere of fixed stars, outside of which there was the intelligible realm of the Platonists, or the Unmoved Movers of Aristotle, or the infinite void of the Stoics, with exception to the utterly rejected infinite worlds of the Epicureans. Nevertheless, this Epicurean concept of an infinite, homogeneous universe with infinite worlds (described poetically by Lucretius) is precisely what Bruno intends to recover. For this, he adopts as a point of departure the Copernican concept of the Sun as the centre of planetary motion and connects all this with the Platonic conception of a provident God who produces an infinite effect according to his infinite power and goodness.⁸

The point of rupture introduced by Bruno that causes the explosion of the finite universe is precisely this: the stars are no longer a distinct periphery of heavenly bodies forming the most perfect region of the bodily universe, but a region homogeneous to ours. Here operates the principle, made explicit in the following chapters, according to which in the infinite universe (as it was said about God before Bruno) the centre is everywhere and the periphery nowhere.⁹ Since the universe is homogeneous and it has the same composition and structure everywhere, since every point is indifferently the centre or the periphery,¹⁰ every star (and not only our star-sun) can be said to be the centre around which a set of planets (invisible for the reasons indicated above) is moving in circular orbits. Bruno is the first thinker in modern times to affirm that the stars are suns and, like our sun, the centre of planetary motion; he is, then, the first philosopher or scientist (there is still at this moment no difference between these terms) to affirm the (infinite) plurality of worlds not as a mere unrealized possibility of God's power,¹¹ but as an undeniable reality both by the force of metaphysical principles and physical reasons.¹²

Let us return, however, to our text. In the verses, Bruno begins by saying that, according to Copernicus,¹³ the Sun is the centre of planetary motion. Nevertheless, the number of planets is not that of the six or seven known since Antiquity (and note here that Bruno still mentions the Moon as an independent planet in its own right, not as a 'satellite' or companion to the Earth).¹⁴ There are, Bruno says, more planets around our sun because "the other crowd" is never or only rarely seen. Under these sup-

plementary planets in our *synodus* or system, Bruno counts (according to my interpretation) not only the comets which move outside the ecliptic, but also planets unseen or unknown at present. Here, Bruno does not refer so much to the possible existence of planets beyond Saturn as to the existence of what he calls 'companion planets' (*planetæ consortes*) to the three superior planets (Mars, Jupiter, Saturn), forming with them structures similar to the couples Earth/Moon and Mercury/Venus, which are located in epicycles diametrically opposed in the same deferent.¹⁵ We have here a development of Copernicanism very different from that of Kepler. Indeed, beginning in 1596 with his *Mysterium cosmographicum*, the German Copernican was to affirm not only a finite universe, where the fixed stars formed a spherical periphery qualitatively different from the absolute centre occupied by the Sun, but also a universe in which the Sun was the unique centre of a necessarily established number of six planets, by virtue of the five regular solids. As geometrical archetypes constituting the very essence of God, the five regular polyhedra were the pattern according to which God had performed and disposed His most perfect creation. In this way, Bruno and Kepler represent two radically different developments of Copernicanism, which were to come into confrontation in 1609 and with the telescopic discoveries of Galileo.¹⁶

The text states that there is no difference between our sun and the stars.¹⁷ Consequently, every star is the centre of a *synodus* of planets. This text adds one further reason for this, besides homogeneity; a reason that enables us to assign to the farthest what applies to the nearest, moreover, to apply a single set of rules to the whole universe. As Bruno says: "the near and the remote, all follow a single rule, and the number of first principles does not change such that they cannot develop everywhere into the same result." This further argument is described in the following terms: the same occurs here around our sun and everywhere around the other suns "because it is necessary by law of nature that the flames take nourishment from the waters."

Imperial Counsellor Johann Matthäus Wackher von Wackenfels (1550–1619), a follower of Bruno who was in close contact with Kepler in Prague from 1602, owned a copy of Bruno's *De immenso* (now located in Olomouc National Library in the Czech Republic). This copy shows signs of an accurate reading of the chapter we are commenting on. Looking at Wackher's copy, it is very probable that Kepler knew Bruno's *De immenso* and, specifically, chapter I, 3.¹⁸ When, in his *Dissertatio cum Nuncio sidereo* (1610), Kepler defended Galileo's telescopic discoveries and reacted against Wacker's initial interpretation of the new planets discovered by

Galileo as planets orbiting a star (in accordance with Bruno's cosmology), the Imperial Astronomer described the position of his opponents in the following terms: "They [Bruno and his followers] supposed it was the fixed stars that are so accompanied [by planets]. Bruno even expounded the reason why this must be so. The fixed stars, forsooth, are of the nature of sun and fire, but the planets of water. *By an indefeasible law of nature these opposites combine.* The sun cannot be deprived of the planets; the fire, of its water; nor in turn the water, of the fire."¹⁹ It is evident that Kepler is here referring to chapter I, 3 of *De immenso*, where Bruno established the interdependency of suns (fires) and planets (waters) as a universal and necessary law of nature: "*nam lege necesse est / Naturae, flammis fomentum sumere ab undis. [...] Sic circum unumquemque Phoebum cytharoedum / Plures discurrunt Nymphae*" (my emphasis).²⁰ The historical significance of this passage becomes greater if, as it appears, it was already clear in Kepler's eyes when he reacted against Bruno's identification of the sun with the stars and, consequently, against the multiplication of planetary systems and the assertion of an infinite universe.

According to Bruno, then, the laws of nature apply universally and in this particular case require not only that the planets be dependent on the suns as the source of light and heat necessary for the emergence of life, but also that the suns be dependent on the planets (called 'waters' as well), because they need the watery humor diffused by the planets or waters in space in order to nourish their fire or 'flames.' We discern here the ancient doctrine (present in the Presocratics, derided by Aristotle²¹—as Bruno reminds us—and restored by the Stoics) of the nourishment of the heavenly bodies with the humid exhalations from the unique Earth. Of course, Bruno drastically modifies this doctrine and adapts it to his Copernican cosmology (in the sense that it is no longer the unique Earth that nourishes all the heavenly bodies with its exhalations). The planets of each system nourish their own central sun, with the consequence that the process which in Stoicism resulted necessarily in the periodic consumption of the world by fire (the famous *ekpyrosis*) became with Bruno the constitution of a perennial and stable system through the equilibrium produced by this interchange of material and energy, leading to a kind of thermodynamically balanced structure.²² In this text, Bruno refers to this equilibrium in exalted poetical terms: "the sun wants to be encircled by many lesser bodies, in order that they mutually dispense and return fecund forces, whereby suitable distance procures peace, since from opposites comes life and nourishment, because they concur separated by harmonic intervals and motion moderates changing fierce heat."²³ Not only this: in the last para-

graph of the commentary in prose of this chapter, Bruno affirms (following his unnamed Stoic source, which is none other than Macrobius' *Commentary on Cicero's Dream of Scipio*)²⁴ that this point was present in the ancient cosmology perverted and destroyed by Aristotle, as testified by the veiled reference to it in Homer's allegory of the banqueting Olympic Gods (the suns) among the black Ethiopians (the earths or planets): "Neque ad fabulas, sed ad eam, quae sub silenii illis occultatur, sapientiam conversi esse judicabimur, quod daemon, seu furor homericus, inducit Jovem cum diis ceteris, nempe stellis, ad Oceanum juxta Aethiopas epulari. Aethiopes sunt opaca planetarum corpora, in quibus elementum aquae dominatur, qui et hospitalium numinum conditione celebrantur. Qui vero deorum et epulantium retinere nomen, sunt ignea astra quae, dicendis causis, magis principe conditione dii nominantur: sed ii quomodo per aquas nutriantur, alia quam vulgus capiat ratione, planius in sequentibus insinuabimus."²⁵

To sum up, this text is a magnificent compendium of Bruno's cosmology, which the Nolan philosopher intended as a restoration of the cosmological truth known to the ancients before Aristotle destroyed it with his vulgar philosophy founded on the assumption of the immobility of the Earth in the centre of a finite universe. If the restoration had begun with Copernicus—praised in *La cena de le Ceneri* as "l'aurora, che dovea precedere l'uscita di questo sole de l'antiqua vera filosofia, per tanti secoli sepolta nelle tenebrose caverne de la cieca, maligna, proterva et invida ignoranza"²⁶—then the wisdom restored by Bruno was none other than that known by the Ancients: the Egyptians, the Chaldeans,²⁷ and the old Greeks (as testified by Homer). When Bruno refers to the Homeric myth as a 'silenus,' he intends to signify a deep truth veiled with a comic appearance, according to the famous Erasmian adage *Sileni Alcibiadis*. Thus, we are not very far from the use made later by Newton of the fable of the 'Pipes of Pan' to refer to the structure of the solar system.²⁸ Anyway, it is an excellent proof of Bruno's concept of historical development as an eternal, cyclical process in which periods of light and virtue alternate with periods of darkness and vice. After the dark period introduced by Aristotle and Christ, the sun of truth and virtue would come again, after the Copernican dawn, thanks to Bruno's restoration of ancient cosmological truth, whose central point was the infinity of the universe and of planetary systems or *synodi*.

This doctrine of the (infinite) plurality of worlds that are intended as solar systems was Bruno's most important and renowned contribution to the cosmological revolution.

In fact, it would become the basis for the accusation that Descartes plagiarised Bruno in his doctrine of the plurality of worlds as planetary vortices.²⁹ Stripped of the oddity of stellar nourishment with the humid exhalations emitted into space by the planets, detached also from the connection with Bruno's antichristian notion of historical development, his concept, along with the telescopic discoveries of Galileo, gained wide acceptance in the scientific community before entering, near the end of the seventeenth century, into the culture of the 'salons' with Fontenelle's *Entretiens sur la pluralité des mondes*. As is well known, Bruno's ideas were in sharp contrast with Kepler's idea that God had created a unique, finite world image of the Trinity and centred in the unique Sun. According to Kepler, between the Sun (the image of the Father) and the stellar periphery (as the image of the Son), there was a unique, vast gulf of space filled with ethereal 'aura' (the image of the Holy Spirit). In this aura, the only existing six planets were inclined to be located in the vicinity of the sun according to distances connected with the five regular solids inscribed between them. This was the perfect creation produced by God after the model of the archetypes constituting His essence.

Without discrediting Kepler's grandiose construction and his decisive contribution to the cosmological and astronomical revolution of the time, it must be said that, on this point, it was Bruno's ideas that received the adherence of immediate posterity. For instance, Christian Huygens (1625–1697) says this in his *Cosmotheoros* (published posthumously in 1698), following a sharp criticism of Kepler's views:

Mais sous cette argumentation se cachait une autre raison pour laquelle Kepler désirait pouvoir considérer le Soleil comme un objet éminent au-dessus des autres étoiles, comme le seul dans la Nature pourvu d'un système de Planètes, et comme situé au milieu du monde. En effet, il avait besoin de ceci pour confirmer son mystère Cosmographique par lequel il voulait faire correspondre les distances des Planètes au Soleil, suivant de certaines proportions, aux diamètres des sphères inscrites et circonscrites aux polyèdres d'Euclide. Ce qui ne pouvait sembler vraisemblable que s'il n'existait au monde qu'un seul groupe d'astres errants et que par conséquent le Soleil était le seul représentant de son espèce. Mais tout ce mystère, bien considéré, ne paraît être qu'un songe né de la philosophie de Pythagore ou de Platon. [...] C'est par des arguments de moins de poids encore qu'il prouve la sphéricité de la surface extérieure du monde laquelle est dite contenir toutes les étoiles; et qu'il établit que

le nombre de ces dernières est nécessairement fini en se basant sur le fait que ceci est vrai pour la grandeur de chacune d'elles. Sa conclusion la plus extravagante c'est que la distance du Soleil à la surface concave de la sphère des fixes serait de six cent mille diamètres de la Terre [...]. N'hésitons pas, nous, à admettre avec les principaux Philosophes de notre temps que la nature des étoiles et celle du Soleil est la même. D'où résulte une conception du monde beaucoup plus grandiose que celle qui correspond aux vues antérieures plus ou moins traditionnelles. Car qu'est-ce qui empêche maintenant de penser que chacune de ces étoiles ou Soleils a des Planètes autour de lui tout comme le nôtre?³⁰

And for his part, in a draft dated after 1684, Newton affirmed:

The Universe consists of three sorts of great bodies, Fixed Stars, Planets, & Comets [...]. The fixt Stars are very great round bodies shining strongly with their own heat & scattered at very great distances from one another throughout the whole heavens. Those wch are nearest to us appear biggest & those wch are further of appear less & less till they vanish out of sight & cannot be seen without a Telescope. [...] Our Sun is one of ye fixt Stars & every star is a Sun in its proper region. For could we be removed as far from ye Sun as we are from ye fixt stars, the Sun by reason of its great distance would appear like one of ye fixt stars. And could we approach as neare to any of ye fixt Stars as we are to ye Sun, that Star by reason of its nearness would appear like our Sun.³¹

For its own part, the General Scholium to the second edition of Newton's *Principia* (1713) accepted the possibility of planets moving around the stars, subject to God's providence: "And if the fixed Stars are the centers of similar systems, they will all be constructed according to a similar design and subject to the dominion of *One* [...] And so that the systems of the fixed stars will not fall upon one another as a result of their gravity, he has placed them at immense distances from one another." ³²

All this, including the comments on the immense distances between stars as well as on their relative visible magnitudes, had been proclaimed by Giordano Bruno in this particular text and in other clear passages in *De immenso*.³³ Needless to say, God's providence is in Newton very different from Bruno's concept of it, since the Italian philosopher identifies it with the very same law of nature related to his pantheism. Bruno's concept,

which included the principle of motion proper to matter, formed instead the basis for John Toland's attack against the Newtonian ideology carried out from the pulpit in the Boyle lectures.³⁴ Nevertheless, for all the reasons adduced in this essay, I have thought more than once in the past and dare to suggest now that some discoverer of our day, in encountering a unidentified extrasolar planet, would commit no absurdity (quite the contrary!) if he were to name his discovery after the man who was the most ardent supporter in early modern times of the necessary existence of extrasolar planets.

BIBLIOGRAPHY

Primary sources

- Aristotle. *Météorologiques*. Ed. P. Louis. Paris: Les Belles Lettres, 1982.
- Bruno, G. *Jordani Bruni Nolani Opera latine conscripta*. 3 vols., 8 parts. Eds. F. Fiorentino, F. Tocco, H. Vitelli, V. Imbriani and C. M. Tallarigo. Naples/Florence: Morano/Le Monnier, 1879–91. Reprint Stuttgart/Bad Cannstatt: Frommann, 1961–62.
- . *Œuvres complètes*. 7 vols. Eds. Y. Hersant and N. Ordine. Paris: Les Belles Lettres, 1993–99.
- Hudry, F., ed. *Liber viginti quattuor philosophorum*. [Corpus Christianorum, Continuatio Mediaevalis, 143 A]. Turnholt: Brepols, 1997.
- Huygens, C. *Œuvres complètes*. 22 vols. Ed. Société Hollandaise des Sciences. The Hague: M. Nijhoff, 1888–1950.
- Kepler, J. *Gesammelte Werke*. 21 vols., 25 parts. Eds. M. Caspar et al. Munich: Beck, 1937–2010.
- Macrobius. *In Somnium Scipionis, Lib. II. Saturnaliorum, Lib. VII*. Lugduni: Ant. Gryphium, 1585.
- . *Commentary on the Dream of Scipio*. Trans. W. H. Stahl. New York: Columbia University Press, 1952.
- Newton, I. *Unpublished Scientific Papers of Isaac Newton: A Selection from the Portsmouth Collection in the University Library Cambridge*. Eds. A. Hall, and M. Hall. Cambridge: Cambridge University Press, 1962.
- . *The Principia. Mathematical Principles of Natural Philosophy*. Trans. I. Cohen and A. Whitman. Berkeley/Los Angeles/London: University of California Press, 1999.
- Rosen, E., ed. and trans. *Kepler's Conversation with Galileo's Sidereal Messenger*. New York/London: Johnson Reprint Corporation, 1965.

Secondary sources

- Bianchi, L. and E. Randi. *Le verità dissonanti. Aristotele alla fine del Medioevo*. Rome/Bari: Laterza, 1990.
- Casini, P. "Newton: The Classical Scholia." *History of Science* 22 (1984): 1–58.
- Courtenay, W.J. *Capacity and Volition. A History of the Distinction between Absolute and Ordained Power*. Bergamo: Pier Luigi Lubrina, 1990.

- Del Prete, A. "Une sphere infinite dont le centre est partout et la circonférence nulle part". L'omnicentrismo chez Giordano Bruno." In *La Renaissance décentrée. Actes du Colloque de Genève (28–29 septembre 2006)*. Ed. F. Tinguely, 33–47. Geneva: Droz, 2008.
- Dick, S. J. *Plurality of Worlds. The Origins of the Extraterrestrial Life Debate from Democritus to Kant*. Cambridge: Cambridge University Press, 1982.
- Granada, M. A. "Il rifiuto della distinzione fra *potentia absoluta* e *potentia ordinata* di Dio e l'affermazione dell'universo infinito in Giordano Bruno." *Rivista di storia della filosofia* 49 (1994): 495–532.
- . "Cálculos cronológicos, novedades cosmológicas y expectativas escatológicas en la Europa del siglo XVI." *Rinascimento* 37 (1997): 357–435.
- . "Giordano Bruno and *le banquet de Zeus entre les Éthiopiens*: la transformation de la doctrine stoïcienne des exhalaisons humides de la terre." *Bruniana & Campanelliana* 3 (1997): 185–207.
- . "'Voi siete dissolubili, ma non vi dissolverete.' Il problema della dissoluzione dei mondi in Giordano Bruno." *Paradigmi* 18 (2000): 261–89.
- . "Considerazioni sulla disposizione ed il movimento del sole e delle stelle in Giordano Bruno." *Physis* 38 (2001): 257–82.
- . *Giordano Bruno. Universo infinito, unión con Dios, perfección del hombre*. Barcelona: Herder, 2002.
- . "'Blasphemia vero est facere Deum alium a Deo'. La polemica di Bruno con l'aristotelismo a proposito della potenza di Dio." In *Lectures bruniane I–II del Lessico Intellettuale Europeo 1996–1997*. Ed. E. Canone, 151–88. Pisa/Rome: Istituti Editoriali e Poligrafici Internazionali, 2002.
- . "Synodus ex mundis." *Bruniana & Campanelliana* 13 (2007): 149–56.
- . "Kepler and Bruno on the Infinity of the Universe and of Solar Systems." *Journal for the History of Astronomy* 39 (2008): 469–95.
- Hoskin, M. "Newton, Providence and the Universe of Stars." *Journal for the History of Astronomy* 8 (1977): 77–101.
- . "Gravity and Light in the Newtonian Universe of Stars." *Journal for the History of Astronomy* 39 (2008): 251–64.
- Jacob, M. C. "John Toland and the Newtonian Ideology." *Journal of the Warburg and Courtauld Institutes* 32 (1969): 307–31.
- . *The Newtonians and the English Revolution, 1689–1720*. Cornell: Cornell University Press, 1976.
- Koyré, A. *From the Closed World to the Infinite Universe*. Baltimore: The Johns Hopkins University Press, 1957.
- Mahnke, D. *Unendliche Sphäre und Allmittelpunkt*. Halle: Niemeyer, 1937.
- McGuire, J. E. and P. M. Rattansi, "Newton and the 'pipes of Pan'." *Notes and Records of the Royal Society* 21 (1996): 109–41.
- McMullin, S. "Bruno and Copernicus." *Isis* 78 (1987): 55–74.
- Ricci, S. *La fortuna del pensiero di Giordano Bruno. 1600–1750*. Florence: Le Lettere, 1990.
- Seidengart, J. *Dieu, l'univers et la sphere infinie. Penser l'infinité cosmique à l'aube de la science classique*. Paris: Albin Michel, 2006.
- Sturlese, R. *Bibliografia, censimento e storia delle antiche stampe di Giordano Bruno*. Florence: Olschki, 1987.

Tessicini, D. *I dintorni dell'infinito. Giordano Bruno e l'astronomia del Cinquecento*. Pisa/Rome: Fabrizio Serra, 2007.

Westman, R. S. "Magical Reform and Astronomical Reform: The Yates Thesis Reconsidered." In *Hermeticism and the Scientific Revolution*. Eds. R. S. Westman and J. E. McGuire, 1–91. Los Angeles: University of California Press, 1979.

NOTES

- 1 "Disposition of planetary systems in the universe. Difference between stars shining by themselves and by another agent. Why planets around other suns are not visible. / Just as around this sun, Earth, Moon, flying Hermes, / Saturn, Venus and Mars, as well as Jupiter, wander, / and a number greater than acknowledged, for the other crowd, / in part sometimes, in part never, is seen, / so the same occurs around any other one, because it is necessary by law/ of nature that the flames take nourishment from the waters. / Greatest, the sun wants to be encircled by many lesser bodies, / in order that they mutually dispense and return fecund / forces, whereby suitable distance procures / peace, since from opposites comes life and nourishment, / because they concur separated by harmonic / intervals and motion moderates changing fierce heat. / Thus, around whichever kitharodes Phoebus/ many Nymphs roam and celebrate their dances./ We see them with acute sense and clear reason, / since the near and the remote both follow a single rule, / and the number of first principles does not change / such that they cannot develop everywhere into the same result," Bruno, *Opera latine conscripta* I, 1, 209–10. English translation by M. A. Granada.
- 2 See the conclusion of the commentary in prose to *De immenso*, I, 1: "Non levem igitur ac futilem, atqui gravissimam perfectoque homine dignissimam contemplationis partem persequimur, ubi divinitatis, naturaeque splendorem, fusionem, et communicationem non in Aegypto, Syro, Graeco, vel Romano individuo, non in cibo, potu, et ignobiliore quadam materia cum attonitorum seculo perquirimus, et inventum confingimus et somniamus: sed in augusta omnipotentis regia, in immenso aetheris spacio, in infinita naturae geminae omnia fientis et omnia facientis potentia" *Opera latine conscripta* I, 1, 205. For the parallel text in the conclusion of the work, see *De immenso*, VIII, 10 (*Opera latine conscripta* I, 2, 316). For the motive (inherited from the Greek philosophical tradition through the intermediary of the Islamic *falsafa*, mainly the Averroistic tradition), see Granada, *Giordano Bruno*, chapter 7 ("La perfección del hombre y la filosofía").
- 3 Cf. the passage of *De immenso*, I, 1, quoted in note 2.
- 4 Several chapters of *De immenso* deal with Bruno's late theory of comets. In his opinion, comets are permanent heavenly bodies, namely planets orbiting the sun in trajectories outside the ecliptic; they are visible only in short arcs of their complete path due to optical reasons: "Subiectum cometæ est planeta, Solem circumscurans non minus, atque aliter, quam Tellus, substantia quaedam composita est; ab istis vero famosis planetis sola relatione differens: quoniam ea de caussa raro apparent, quia eorum circulus non venit ad eam oculorum nostrorum et Solis oppositionem, ut specularem reddat lucem, nisi raro," *De immenso*, VI, 20 (*Opera latine conscripta* I,

- 2, 225). See Granada, "Cálculos cronológicos," 414–35 and more recently Tessicini, *I dintorni dell'infinito*, chapter IV ("Le comete").
- 5 The term *synodus ex mundis* to designate the planetary system is Bruno's coinage. The previous Italian cosmological dialogues, published in London in 1584, already present the idea of planetary systems, but they do not use any precise term for it; sometimes they are simply called 'mondi' ('worlds'). The Latin term *synodus (ex mundis)* appears for the first time in the Latin works published in Paris in 1586 (*Centum et viginti articuli de natura et mundo adversus Peripateticos*) and in Germany in 1588 (*Camoeracensis acrotismus* and *Articuli adversus mathematicos*). Astronomical and astrological literature of the time used the term *synodus* as a synonym for 'conjunction,' to refer for example to planetary conjunctions (thus in Brahe and in Campanella). The application of the term to indicate a permanent (and multiple) structure of planetary bodies orbiting their respective sun or star seems to be Bruno's invention. He was surely attracted by the religious meaning of the term as an assembly or 'synod,' and this theological meaning allowed him to suggest the religious dimension of the celestial bodies as an expression of God and a way to unite man with Him through the philosophical (or scientific) 'contemplation' of them. On this, see Granada, "Synodus ex mundis."
- 6 Cf. *De immenso*, I, 3 (*Opera latine conscripta* I, 1, 213): "Ii, quibus absque ingenio atque ratione largiti sunt oculi, ita negabunt circa alia astra fixa, nempe soles, discurrere planetas, sicut et non apparent: cum et omnis ratio dictet, quod tum *propter corporum parvitatem*, tum maxime *propter vim luminis remissiore*, quae est in *speculo*, quod lucis umbram atque imaginem non ipsam lucem objectat, a fixorum astrorum quocumque alio tellures, quae sunt circa hoc fixum astrum, non apparere possunt" (my emphasis). The second reason was already present in the critical revision of the optical theory expounded in the third dialogue of *La cena de le Ceneri* as a reaction to Andreas Osiander's preface to the Reader added to Copernicus' *De revolutionibus*.
- 7 Ibid., IV, 13 (*Opera latine conscripta* I, 2, 69): "minime possunt ea corpora lucem / ad nos usque dare, triplici ratione, remissam. / Nam lux non propria est, parva de mole, *remota*" (my emphasis).
- 8 The adoption of an Epicurean cosmology with infinite worlds along the infinite universe is counterbalanced by the conception of a necessary derivation or production of the universe by God, who exercises his providence over it, maintaining, for example, celestial bodies free from dissolution in time or disposing planets and stars at appropriate distances for the preservation of life. On this, see the important assertion in *De immenso*, II, 5 (*Opera latine conscripta* I, 1, 272–74) and V, 3 (*Opera latine conscripta* I, 2, 125–27): "Sed non propterea rationis carpo elementa / impia, Democriti adstipulatus sensibus, atqui haec / mentem alta agnosco moderantem cuncta paternam", 127. For the platonic origin of this conception, see Granada, "Voi siete dissolubili."
- 9 Cf. the title of chapter I, 5: "Ut in universo ubique sit medium, ideoque non minus ubique in aetheris medio consistere mundos quam tellurem consistere videamus" (*Opera latine conscripta* I, 1, 218). As is known, the dictum "Sphaera infinita cuius centrum est ubique, circumferentia nusquam" is the second definition of God in the medieval *Liber XXIV philosophorum* attributed to Hermes Trismegistus. Hudry,

ed., *Liber viginti quattuor philosophorum*, 7–8. After the ambivalent statement in Cusanus (“Thus, the fabric of the world (*machina mundi*) will *quasi* have its center everywhere and its circumference nowhere, because the circumference and the center are God, who is everywhere and nowhere,” *De docta ignorantia*, II, 12; cited by Koyré, *From the Closed World*, 17), Bruno is the first to apply this definition to the universe in so far as it is infinite. Cf. *De immenso*, *Opera latine conscripta* I, 1, 291: “Hoc [the universe] est quod sphaeram definivit Xenophanes infinitam, cuius centrum est ubique, circumferentia nusquam. [...] Sic infinitum nusquam est circumferentialiter, ubique est centraliter.” On this, see the classical study by Mahnke, *Unendliche Sphäre und Allmittelpunkt* and now Del Prete, “Une sphere infinie dont le centre est partout et la circonférence nulle part.”

- 10 As Bruno had already stated in *La cena de le Ceneri*, “Non è più degno d’esser chiamato ottava sfera dove è la coda de l’Orsa, che dove è la terra, nella quale siamo noi,” Bruno, *Œuvres complètes*, II, 233.
- 11 For the traditional discussion on the *possibility* (by God’s absolute power or *potentia absoluta*) of a plurality of worlds, see Dick, *Plurality of Worlds*. Scholastic theology and natural philosophy had corrected the Aristotelian position, according to which a plurality of worlds was absolutely impossible, by saying that it was possible for God’s absolute power to create more than one world, although his will had freely chosen and ordained (by his *potentia ordinata* or ordained power) the unique and finite world known to Aristotle. For the distinction in God’s power see Courtenay, *Capacity and Volition*; for the persistence of the doctrine of the uniqueness of the world until Giordano Bruno, see Bianchi and Randi, *Le verità dissonanti*, chapter 3 (“L’aristotelismo dei teologi”), especially 65sq.
- 12 Cf. our introduction to *De l’infinito, universo e mondi / De l’infini, l’univers et les mondes*, in *Œuvres complètes*, IV, in particular § 5. See also Granada, “Il rifiuto della distinzione fra *potentia absoluta* e *potentia ordinata* di Dio”; idem, “Blasphemia vero est facere Deum alium a Deo”.
- 13 Although Bruno endorses the Copernican system, Copernicus is not explicitly mentioned. In contrary to the Italian dialogues, where Copernicus already appears in the first of them (*La cena de le Ceneri*) as the principle of the recovery of the true structure of the universe, the Polish astronomer only enters into the scene in *De immenso* at the end of book three. See *De immenso*, III, 9 (“De lumine Nicolai Copernici”) *Opera latine conscripta* I, 1, 380sqq.
- 14 The modern notion and term for ‘satellite’ was first introduced by Kepler in his *Narratio de observatis a se quatuor Iovis satellitibus erronibus* (1610). Cf. Kepler, *Gesammelte Werke*, IV, 317–25. For the complex problem of the relation Earth–Moon in Bruno, see now Tessicini, *I dintorni dell’infinito*, chapter I (“La Terra e la Luna”).
- 15 Cf. *De immenso*, II, 9 (*Opera latine conscripta* I, 1, 291): “Ast veluti Tellus cum Luna est, Mercuriusque / cum Venere adnexus, quo currant passibus aequis; / non aliter fortasse Jovi, Marti, ac Seniori / Consortes natura dedit, qui tempore certo, / aut raro, aut oculis nunquam sunt lumina nostris”. In one place Bruno attributes to the superior planets an annual period around the sun, similar in duration to that of the inferior planets: “Motus annuus omnium planetarum circa solem aequalis est vel prope aequalis” Ibid., V, 8 (*Opera latine conscripta* I, 2, 144). This has given occasion to

- criticism of the pertinence in calling Bruno a Copernican author. See Westman "Magical Reform and Astronomical Reform"; McMullin, "Bruno and Copernicus."
- For a more recent and balanced opinion, see Tessicini, *I dintorni dell'infinito*, 101sq.
- 16 For a more complete analysis we refer to Granada, "Kepler and Bruno."
- 17 From *De stella nova* (1606) until the *Epitome astronomiae copernicanae* (1617–1621), Kepler will try to undermine and refute this thesis. See our essay quoted in ref. 16 and Koyré, *From the Closed World*, chapter III.
- 18 On this, see Granada, "Kepler and Bruno," 472–75.
- 19 Rosen, *Kepler's Conversation*, 39 (my emphasis). The Latin text reads: "At putabant fixas stellas esse quae sic circumirentur; causam etiam dixit Brunus cur esset necesse: Fixas quippe Solaris et igneae esse Naturae, Planetas aqueae; et fieri lege Naturae inviolabili, ut diversa ista combinentur, neque Sol Planetis, ignis aqua sua, neque vicissim haec illo carere possit" (*Gesammelte Werke*, iv, 305. 13–17; emphasis mine). Cf. Granada, "Kepler and Bruno," 480sq.
- 20 Later in the *Conversation*, Kepler speaks of the Sun as "truly an Apollo, the term frequently used by Bruno" (45). If in our verses of *De immenso*, I, 3 Apollo is designated as "Phoebum Cytharoedum," Bruno does speak frequently—as Kepler says—of Apollo in this sense. See e. g. *De immenso*, IV, 3 in *Opera latine conscripta* I, 2, 23: "hinc circa unum medium plures nymphe seu Musae, inde unus intra plures nympas Apollo" and nearer to our chapter *De immenso*, I, 2 ("crinitus Apollo / [...] currum vectantem tela diei / extulit") and I, 4 ("sensus Apollinis hujus, verum etiam Synodi totius"), in *Opera latine conscripta* I, 1, 207sq., 216. For all this, see Granada, "Kepler and Bruno."
- 21 See *De immenso*, VI, 20: "Antiquorum tantummodo derisas habemus et imperfecte relatas a sophistis [i. e. Aristotle] positiones, quorum tamen rationes nullae extant, nulla monumenta; quinimo theses illae vel contradictione indignae a imperitissimo vulgo censentur. Atqui *Veritas Temporis Filia*. Aristoteles refert in meteorologicis, Aeschylum et Hippocratem Chium dixisse, cometam esse planetam, comamque ab humore per solem elevato accipere," *Opera latine conscripta* I, 2, 229sq. Bruno is referring to Aristotle, *Meteorologica*, I, 6.
- 22 See Granada, "Giordano Bruno et le banquet de Zeus entre les Éthiopiens."
- 23 Bruno had already presented this doctrine in the fourth dialogue of *La cena de le Ceneri*, Cf. *Œuvres complètes* II, 199.
- 24 Cf. Macrobius, *In Somnium Scipionis*, II, 10, 195: "Ignem aethereum phisici tradiderunt humore nutriri: asserentes ideo sub zona coeli perusta, quam via Solis (idest zodiacus) occupavit, Oceanum [...] a natura locatum, ut omnis latitudo, qua Sol cum quinque vagis et Luna ultro citroque discurrunt, habeat subiecti humoris alimoniam. Et hoc esse volunt quod Homerus divinarum omnium inventionum fons et origo, sub poetici nube figmenti, verum sapientibus intelligi dedit, *Iovem cum diis ceteris, id est, cum stellis profectum in Oceanum Aethiopibus eum ad epulas invitantibus*. Per quam imaginem fabulosam Homerum significasse volunt hauriri de humore nutrimenta sideribus, qui ob hoc Aethiopes reges epularum participes coelestium dixit: quoniam circa Oceani oram, non nisi Aethiopes habitant, quos vicinia Solis usque ad speciem nigri coloris exussit." (Emphasis mine.) ("Natural philosophers have taught us that ethereal fire feeds upon moisture, declaring that directly under the torrid zone of the celestial sphere, which is occupied by the suns'

course or zodiac, nature placed Ocean, [...] in order that the whole broad belt over which the sun, moon and the five errant planets travel might have the nourishment of moisture from beneath. They claim that Homer, the originator of all conceits about the gods, hid this subtle truth beneath the cloak of poetic imagery when he said that *Zeus, invited to feast with the Ethiopians, went off to Ocean with the other gods, that is with the planets*. They say that by this allegory Homer meant that the planets drew their nourishment from the water and that he called the Ethiopians 'kings of the celestial tables' because only the Ethiopians inhabit the bank of Ocean, a race whose skin has been burned black because of the sun's nearness," Macrobius, *Commentary on the Dream of Scipio*, 218. Cf. Granada "Giordano Bruno et le banquet de Zeus entre les Éthiopiens," 203sq.

- 25 *De immenso*, I, 3 (*Opera latine conscripta* I, 1, 213). It is probable that Bruno's sentence "Jovem cum diis ceteris, nempe stellis, ad Oceanum juxta Aethiopas epulari" quotes the Homeric verses (*Iliad*, I, 423–24) through the Latin version by Macrobius, identifying the Gods with the stars: "Jovem cum diis ceteris, id est, cum stellis profectum in Oceanum Aethiopibus eum ad epulas invitantibus."
- 26 *La cena de le Ceneri*; *Œuvres complètes* II, 41.
- 27 According to Bruno, the concept of planetary systems as a union of opposites was known to the book of Job, which derived from the wisdom of the Chaldeans. See *La cena de le Ceneri*; Bruno *Œuvres complètes* II, 199, where Job, 25, 2 ("Dominion and fear are with him, he maketh peace in his high places") is interpreted in this sense.
- 28 See McGuire and Rattansi, "Newton and the 'pipes of Pan'." Cf. also Casini, "Newton: The Classical Scholia."
- 29 On this, see Ricci, *La fortuna del pensiero*, 170–83.
- 30 Huygens, *Cosmotheoros*, in Huygens, *Œuvres complètes*, XXI, 810sq. Huygens, who nevertheless describes Kepler as "cet Homme si génial, qui fut le grand instaurateur de l'Astronomie" (812), conceded to the nearest star to our Sun (Sirius) a distance of 27,664 a. u. (816) and he accepted for any couple of stars a distance as minimal as this (*ibidem*). Thus, Huygens arrived at a view similar to that of Bruno (cf. *De immenso*, IV, 3, in Bruno, *Opera latine conscripta* I, 2, 21: "Quantumvis ergo proximae apparent et quasi haerentes illae stellae, non tamen eas minus ab invicem distare intelligere debemus, quam (ut dictum est) a nostro sole alter sol, ut Basiliscus"), except that he considered the infinite number of stars as uncertain (*ibidem*). On Huygens, see Dick, *Plurality of Worlds*, 127–35 and now Seidengart, *Dieu, l'univers et la sphere infinie*, 554–60. Huygens possessed in his library Bruno's Italian dialogue *De l'infinito, universo e mondi* and also the Latin philosophical poems *De monade* and *De minimo*. On this, see Sturlese, *Bibliografia, censimento e storia*, 57, 122.
- 31 See Newton, *Unpublished Scientific Papers*, 374sq. (MS. Add. 4005, fols. 21–22).
- 32 Newton, *The Principia*, 940. See also Hoskin, "Newton, Providence and the Universe of Stars," and Hoskin, "Gravity and Light in the Newtonian Universe of Stars."
- 33 Granada, "Considerazioni sulla disposizione ed il movimento del sole e delle stelle in Giordano Bruno."
- 34 For this, see Jacob, "John Toland and the Newtonian Ideology"; Jacob, *The Newtonians and the English Revolution*, chapter 6.

WOLFGANG NEUSER
Atom, Matter, and Monade*

Minimum esse tum numerorum, tum magnitudinum, tum omnium utlibet elementatorum substantiam. [...]

Minimum substantia rerum est; Atque id idem tandem opperies super omnia magnum. Hinc monas, hinc atomus, totusque hinc undique fusus Spiritus, in nulla consistens mole, suisque Omnia constituens signis, essentia tota, Si res inspicias, hoc tandem est, materiesque. [...] Esto nulla monas, numerorum non erit ullus; Namque ea constituit species, statuens genus omne. Quocirca in cunctis primum est fundamentum, ut unde Et Deus et natura parens, arsque explicat alte Quod super omne genus perstat, quod et in genere omni est. Ergo cluit constans in cunctis, et super haec qui Claudit finitum, infinitum permeat amplum, Efficiens, nectens, integrans atque propagans Quidquid compositum, et simplex quodcumque creatur Immenso a seculo pendens; quia maxima quaeque Ex minimo, in minimo, ad minimum sunt, per minimumque. [...]

Ut numero modico verba infinita reponit Litera et accentus, quorum pars denique punctus Prima datur, quare hic tota est substantia in illis; Non aliter rerum simplex substantia prima est, Corporibus minimum corpus, quod et omnia tandem Attingunt resoluta. Nihil discordat in uno hoc.

De triplici minimo et mensura, BOOK I, CHAPTER 2.¹

Giordano Bruno's view of matter has been studied by several scholars,² and two significant views can be identified. One of these theses is stated, for instance, by Tocco,³ the other by Védrine.⁴ Tocco identifies a turn in Bruno's view between his early works (*De la causa*, 1583) and his late work in Frankfurt (1591)—a turn from the conception of substance in the Italian work, leading gradually to the conception of the atom in the late Latin work.⁵ Védrine, on the other hand, states that Bruno retains his conception of matter as the substrate of substance—in contrast with the form being substance—and argues that Bruno's late atomism remains secondary the whole time.⁶

I, myself, tend to a third position that seems to be admitted and supported by the original text. Bruno develops a conception in which Aristotle's idea of substance is merged with an atomistic idea.⁷ Moreover, right from the beginning, Bruno's philosophy is based on a conception, which is essentially of Neoplatonic structure. First, in his early work, matter is primarily described as a substance; then, in later works, three types or manifestations of the monad are derived from the notion of the *unum*—that is, the infinite one without inner distinction. These three forms are generated as the first finite units within the monad, although the monad has no explicit inner structure. The third form of the monad—besides the *spiritus* and *spatium*—is the *atomus*, the physically smallest indivisible.⁸ Bruno increasingly tried to make these two concepts compatible. In his Frankfurt works, he finally manages to do so.

These three forms—spirit, space, and atom—constitute what is known as *matter* in the philosophical tradition before. Following Aquinas' interpretation of Aristotle, matter implies three aspects: it is substance, it has form, and it undergoes *privatio*.⁹ 'Substance' is everything that we associate with the idea of the atom, 'form' means shape or figure or Gestalt, and *privatio* results in the constitution of the individual physical body, which is made up of atoms.

Thus, as far as the unextended and indivisible atom enters space, Bruno's final position is that the atom becomes matter, which then appears already in connection with the *spiritus*. With respect to the *atoma natura*, the atom eventually turns out to be merely mathematically indivisible.¹⁰ Space, after emerging from the geometrically indivisible point, is the second indivisible structure. The atom is substance, and in the pure form of its connection with *spiritus*, it represents the "materia prima." However, with respect to the possible combinations of different atomic qualities, the atom in space is "parvus minimum," which is one of Galenus's or Empedokles's four physical elements.¹¹

Rather than following syncretism, Bruno attempts to integrate different traditional conceptions by modifying basic statements of traditional concepts in such a way that a consistent metaphysics results. Essential for his metaphysics is his explanation of traditional conceptions of substance through a Neoplatonic interpretation of understanding as the appearance of the monad. As a philosopher of the Renaissance, Bruno operates in a post-traditional stage of history,¹² after the end of the traditional stages of the Middle Ages and before the onset of the traditional stages of Modernity.¹³ A characteristic of this post-traditional stage in history was that methods or norms of thought lost their general acceptance. Also, at the

same time, the broad consensus about the conceptions, which had granted an ultimate foundation for science during the Middle Ages, disappeared. This gave place to a variety of approaches and proposals by the philosophers of the time to fill the need for new conceptions as an ultimate foundation for science. A change in thought and norms is needed in such post-traditional stages, and change accelerates. At the end of the post-traditional stage during the Renaissance, Bruno anticipates the subject-based foundation of knowledge, which is a characteristic of the Modern Age.¹⁴ In many respects, Bruno reflects future conceptions of the Modern Age, although he had no adequate notions at his disposal— notions that still were waiting to come up. Lacking modern notions, Bruno, in a way, partly made use of Middle Age notions to state modern conceptions. Thus, Bruno seems to manage some sort of philosophical splits, filling the gap between the Middle Ages and Modern Age, which differs from eclecticism. His texts show many circumscriptions and paraphrases of thoughts, which Bruno succeeds in expressing without adequate modern notions at his disposal.

The subject-based foundation of knowledge can be interpreted from two metaphysical approaches: the substantial interpretation of Descartes (and Spinoza) and the functional interpretation of Leibniz. Substantial interpretation means that the basic principle of all connections and relations of insight and understanding is grasped by the idea of the traditional notion of substance. There is some substance existing, and its existence determines thinking about the world. Space and number, therefore, have an ontological status, which grasps a real given fact¹⁵ and matter is made up of real particles or corpuscles.¹⁶

In contrast, as a consequence of the functional interpretation of Leibniz, the metaphysical principle—stating that the functional relations within a monad are the only reality—provides an explanation of all phenomena in the world by means of relations and attributes, which are established by an intrinsic generation programme within the monad.¹⁷ For example, in Leibniz's view, space is the external relation between points that are nothing but an external representation of the monad.¹⁸ This is in contrast to the notion of a God-given substance, as accepted during the Middle Ages. Leibniz makes a distinction between the two primary entities: the point, which is mathematical, and the atom, which is material. In particular, these conceptions, dominated by Neoplatonic ideas in the Middle Ages, establish the monad or unity as the prior metaphysical entity.¹⁹

Bruno focuses on a conception that in some respects is similar to that of Leibniz and makes use of notions and ideas referring to substance.²⁰ Bruno regards matter as substance, constituted by functional relations

between its elements (which are atoms), points in space, and the *spiritus*. Variation in these elements and their relations constitutes the different qualities of matter. With his interpretation of matter, Bruno continues a discussion about the atomic world which had peaked during the twelfth century,²¹ but was still going on during the Renaissance.

This discussion was opened by broad reflections around the qualities of the possible atoms in the conflicting Aristotelian and Platonic conceptions of substance and elements. The existence of atoms is excluded by the Aristotelian concept of substance with the argument that the fundamental continuity of substance and their essential attributes is in conflict with the assumption of an indivisible smallest.²² The Platonic conception of elements in the *Timaios*,²³ however, is in accordance with that assumption of discrete particles. The discussion is over attributes of the atom like extension and indivisibility—whether or not it is dimensionless or point-like—and extends to the existence of a vacuum in a micro-scale. Is quality or quantity the substantial attribute of atoms? Are the atoms mechanical constituents of things, just put together, or does the dynamic movement of atoms constitute the attributes of things? Are atoms just corpuscles, or are they essentially substance?²⁴

During the twelfth century, these discussions presumably develop merely in the context of the *Physics* of Aristotle, the paraphrase (not the original) of Plato's *Timaios* authored by Calcidius,²⁵ and the works of Galenus²⁶ that deal with the smallest particles. In Bruno's days, Lucretius's text on Epicurus's atomism was well-known,²⁷ as was the complete text of *Timaios*, and Bruno is familiar with Diogenes Laertius's paraphrase of Democritus and Leucippus,²⁸ and apparently also with discussions within the School of Aquinas.²⁹ Furthermore, there are echoes of ideas from William of Conches,³⁰ Nicolaus of Autrecourt, and Johannes Wyclif,³¹ whose works Bruno might have known.³²

William of Conches³³ presents a corpuscular theory and holds that elements exist in pure form. The elementary particles are specified by their qualities. The smallest corpuscles are dimensionless and point-like. This is opposed to Thierry of Chartre, who argues that elements are derived entities, states of aggregations of atoms forming the structure of matter. Nicolaus of Autrecourt³⁴ assumes that there are specific atoms for all specific material and each of its features. Also, there is a microscopic vacuum between the atoms. According to Wyclif,³⁵ atoms are mathematical correlations of points in space, and the objects in the sensual world gain extension by the coexistence of atoms lying next to each other.

THE MONAD

Bruno's monad is a metaphysical unity, which systematically precedes and underlies everything. This unity has no structure; rather, it is the *unum* and *primum* as such.³⁶ Nevertheless, the monad generates the manifold of the phenomena. It bears the guarantee that everything—i.e., all qualities—that can appear in phenomena are present in the *unum*. Thus, the monad provides a complete description of the whole manifold of phenomena in the world. This complete description is achieved by three aspects of the monad—or, to be more precise, three finite unities or aspects of the infinite unity. The first aspect is the *spiritus*, a principle inherent in all matter. Ever since *De la causa*, it is discussed as the principle of form and *animus mundi*.

The second finite form of the *unum* is the point. It is first described as flat—i.e., without extension. This is a pure mathematical interpretation of the point. Nonetheless, in a self-generating process, the point gives rise to the multitude of numbers and geometric figures. Bruno introduces a distinction between two aspects of the point: the extension or area named *punctus* and the boundary or termination called *punctum*, which characterizes the finite *unum* of the point. A dialectic movement to and fro between periphery and area, or content and term, provides the generation of the manifold. The logic behind this corresponds to a type of *logic of reflection* in the notion of *distinction* between difference and unity. In some respects, the point and the generated manifolds correspond to a projection of space into the flat plane, from which a point can never escape.

The third finite representation of the monad is the atom. It is a metaphysical structure of special extension—or, more precisely, it is endowed with the potential to expand into space.³⁷ Thus, the atom can be understood as the smallest possible physical unity and nothing but the smallest possible physical unity.

All these three structures—*spiritus*, space, and atom—are finite forms of existence belonging to the infinite unity called monad. They are generated out of the monad, and each of them represents one combination of the three aspects of the various things in the real world. Whenever these three finite units combine, finite things of the world come to mind,³⁸ and they differ in quality depending on the combination of the qualities arising from the connection of *spiritus*, space, and atom.³⁹

THE ATOM

Following the tradition of Thomas Aquinas in the thirteenth century, the question of whether or not there is an ultimate indivisible entity is discussed. Following Aegidius Romanus, there are two possibilities: either quantitative or qualitative separation by repeated partitioning.⁴⁰ The first result is a spatial point as the indivisible entity and is a matter of mathematics. The latter possibility results in atoms, indivisible physical entities with qualitative attributes beyond extension. Here the potential qualities of the atom correspond to the elements.⁴¹ The atom can be interpreted in a negative way—it cannot be divided any further or in a privative way—the atom is limited to one of the qualities manifested in the elements.⁴² The negative determination of the atom is accidental insofar as it is a species and perceptible. Substantially, atoms are determined as the substance that makes bodies live. They have to be interpreted as analogues—just as demons are souls, which live in all bodies. The *atoma natura* is privative insofar it is a mathematical and arithmetical entity, as well as a universal logical unity: “ut grammatico atomum est syllaba, dialectico dictio, versificatori pes”⁴³ and “Est [*atoma natura*, W. N.] momentum in qualitatibus activis et passivis et neutris.”⁴⁴

THE NEGATIVE QUALIFICATION: ATOMA NATURA

With the qualification from the negative—i.e., the atom cannot be divided further—a limiting distinction of atom and monad is made. The atom is the finite physical representation of the infinite unity, which is the monad. Consequently, several attributes of the atom result.⁴⁵ They are expanded, but are no bodies. They possess different qualities and the ability to compose with space and receive spirit. Atoms have no parts. They are a minimum. Any atom can combine with any other. There are no microscopic vacuums between the atoms.

ELEMENT AND ELEMENTS: PARVA MINIMA

During the Middle Ages, in the reception of Galenus's texts,⁴⁶ the smallest material unity had already been identified with the Platonic elements: water, earth, air, and fire. Bruno takes the smallest finite qualitative unit,

the atom, as an element of potential physical realization. Atoms can transform into other elements.⁴⁷ They can combine and underlie compression. *Elementa mixta* are combinations of atoms with different qualities. Their formation is described by Bruno in his works *De monade* and *De immenso*:

“Considera non ex uno elemento, sed ex quatuor omnia (licet aliud in aliis, aliter atque aliter praedominetur) componi: et consequenter non ex simplicibus, sed ex quatruplici spiritu, alia in hoc, alia in illo, conditione vincente et eccellente, formari.”⁴⁸

“Materia autem prima est ex qua semen est illud, quae et aliis seminibus est communis. Considera in omni generatione nova instituenda praeaccipere oportere materiam primam, quia illa unica formae substantialis est subiectum. Considera formas specierum determinatam habere magnitudinem secundum maximum et secundum minimum.”⁴⁹

“Considera nos heic materiam primam non simpliciter ad physicae aristotelicae amussim capere, quae ad omnes material formas aequae respicit, et ab omnibus aequae distat.”⁵⁰

“...(sicut omnia particularia in praesenti forma perpetuari desiderant) defraudatur: inde enim istud evenit, quod, cum material particularis universos simul actus comprehendere nequeat, successive comprehendit atque sigillatim, ita, quod praesens est, tantum cognoscit atque desiderat: per naturae ergo dictamen vult esse materi, per eam vero (quae est a contractione formae ad hanc materiam, et limitatione materiae ab hac forma) ignorantiam, vult materi esse hoc quod est; nescit enim aliud unde venit et quo vadat.”⁵¹

inquam, caelorum illa substantia quinta, divine corporea, sine material materialis, sine privatione forma, actum cum material coniunctum habens, material levitatisque expers, nullae generationi corruptionique obnoxia, alterationem respuens, neque incrementi neque decrementi capax, circulo versabilis, ad medium non appropinquabilis, a centro non elongabilis, rapidissimo supremum elementum gyro atterens, cui nihil est contrarium, motu et luce generationis caussa...”⁵²

“Ubi et sine sensu per lucem ignem verum licet experiri, quando materiam combustibilem adhaerentem accendit. Quod ergo lucet non est ignis neque lignum, sed humida substantia, vel ignis in substantia humida, vel humida substantia lucis quadam affecta virtute, quam in simili potest exercere material. Imo et lux per se est invisibilis, visibilis vero per ipsum cuiinhaeret corpus.”⁵³

“Etenim Tellus quae eiusdem est speciei, generabilis est et corruptibilis substantiae, est enim animal, quantumvis divinum, etiam mortale.”⁵⁴

MATTER

“Materia,” according to Bruno, is the particular structure of the world that, inspired by *mens*, represents the appearance of atoms in space.⁵⁵ Matter is the substrate of the substance of all things, and, with respect to this substance, Bruno differentiates the atoms—which, to be more precise, are the elements in space inspired by *mens*.⁵⁶ Thus, matter can be specified in two opposite ways. The first way is a systematic ‘retrospection’ to its constituents—i.e., atom, space, and *spiritus*—and to the specification of matter as a substance. The second is a ‘prospection’ to the body or *corpus* behind the things. The constitution of matter and real things is based on a representation of atoms in space and not merely in the flat.⁵⁷

SUBSTANCE AND PRIMA MATERIA

“En, According to the Aristotelian interpretation—and Bruno follows this view—matter has substance, form, and *privatio* in all physical things. It is substance with respect to the specifications of its constituents. Matter is composed, combined, or compressed (as it is made up by its indivisible constituents). It is made up by elements in space, and it is inspired by the spirit. This does not merely reflect matter as a real physical thing, but rather focuses on the *potentia* inherent in the *prima materia*, meaning the composition of smallest indivisible qualities—with the potential to appear in space and, at the same time, with the inspiration and readiness to form various combinations.”⁵⁸

BODY OR CORPUS

As far as matter is inspired by spirit, systematically ordered in space, and representing compositions of elements forming things, Bruno characterizes it with the term *corpus*.⁵⁹ Bodies are mixed combinations of elements, which have various qualities, as well as various relations and compressions among each other. Bodies are always in space. This is the systematic level of the conception of matter, where the notion of *corpuscles* comes into play. All bodies are combinations of the qualities of the Platonic elements water and earth. Fire and air, however, are the spiritual elements of *mens*, which is everywhere.⁶⁰

CONCLUSION

Bruno takes part in the contemporary discussion about the smallest particles and attempts to integrate traditional conceptions—both by identifying and excluding the inconsistencies and by combining consistent ideas to his own theory of atoms.⁶¹ In particular, he refers to the idea of substance in the Aristotelian tradition, to the Platonic conception of elements, and to the Lucretian view of corpuscles, developing them into his own new conception of atoms. The Neoplatonic conception of inspiration—of matter filled with spirit—is a second peculiarity of Bruno's theory of atoms, in which a remarkable system of reasoning is brought to light.

BIBLIOGRAPHY

Primary sources

- Bruno, G. *Jordani Bruni Nolani Opera latine conscripta*. 3 vols., 8 parts. Eds. F. Fiorentino, F. Tocco, H. Vitelli, V. Imbriani and C. M. Tallarigo. Naples/Florence: Morano/Le Monnier, 1879–91. Reprint Stuttgart/Bad Cannstatt: Frommann, 1961–62.
- . *Œuvres complètes* 7 vols. Eds. Y. Hersant and N. Ordine. Paris: Les Belles Lettres, 1993–99.
- Descartes, R. *Discours de la methode*. Leyden: Ian Maire, 1637.
- . *Principia*. Paris: Vrin, 1964.
- . *Meditationes de prima philosophia with La Geometrie*. Paris: Michael Soly, 1641.
- Galenus. (Aelius Galenus, Claudius Galenus, or Galen of Pergamon). *De elementis secundum Hippocratem*. Ed. C. Kühn. Leipzig: C. Knobloch, 1821.
- . *On the natural faculties*. Trans. A. Brock Chicago: William Benton, 1952.
- Haeckel, E. *Die Welträtsel*. Leipzig: Alfred Kröner Verlag, 1899.
- Leibniz, G. W. *Hauptschriften zur Grundlegung der Philosophie*. First edition. Trans. E. Cassirer. Hamburg: Meiner, 1966.
- . *Monadologie*. Ed. H. Glockner. Stuttgart: Reclam, 1970.

Secondary sources

- Bombassaro, L. C. *Im Schatten der Diana. Die Jagdmetapher im Werk von Giordano Bruno.* (In the Shadow of Diana: The Hunting Metaphor in the Works of Giordano Bruno.) Frankfurt am Main: Peter Lang Europäischer Verlag der Wissenschaften, 2002.
- Brockmeier, J. *Die Naturtheorie Giordano Brunos.* Frankfurt am Main: Campus-Verlag, 1980.
- Heipcke, K., W. Neuser and E. Wicke "Über die Dialektik der Natur und der Naturerkenntnis. Anmerkungen zu Giordano Brunos De Monade, Numero et Figura." In *Die Frankfurter Schriften Giordano Brunos und ihre Voraussetzungen.* Eds. K. Heipcke, W. Neuser and E. Wicke, 145–62. Weinheim: VCH, 1991.
- Holz, H. H. *Descartes.* Frankfurt am Main: Campus-Verlag, 1994.
- Kristeller, P. O. *Acht Philosophen der italienischen Renaissance.* Trans. E. Blum. Weinheim: VCH, 1986.
- Kuhlenbeck, L. "Vorwort des Übersetzers." In G. Bruno, *Zwiesgespräche vom unendlichen All und den Welten.* Ed. L. Kuhlenbeck. Jena: Eugen Diederichs Verlag, 1904.
- Laertius, Diogenes. *Leben und Meinungen berühmter Philosophen.* Trans. O. Apelt. Hamburg: Meiner, 1967.
- Laßwitz, K. *Geschichte der Atomistik vom Mittelalter bis Newton.* Hildesheim: Georg Olms Verlag, 1984.
- Maier, A. *An der Grenze von Scholastik und Naturwissenschaft.* Rome: Edizioni di storia e letteratura, 1952.
- . *Die Vorläufer Galileis im 14. Jahrhundert.* Rome: Edizioni di storia e letteratura, 1966.
- Monti, C. "Lukretianismus und Neuplatonismus. Versuch einer theoretischen Synthese in den lateinischen Gedichten Giordano Brunos." In *Die Frankfurter Schriften Giordano Brunos und ihre Voraussetzungen.* Eds. K. Heipcke, W. Neuser and W. Wicke, 163–80. Weinheim: VCH, 1991.
- Neuser, W. *A Infinitudo do Mundo* (The infinitness of the world). Porto Alegre: EDI-PUCRS, 1995.
- . "Tendenzen in der Wissenschaftsgeschichte der Naturwissenschaften." *Dialektik* 12 (1978): 300–305.
- . "Traditionslinien in Wissenschaft und Wissenschaftsgeschichte." *Biologisches Zentralblatt* 112 (1993): 131–35.
- . "Infinitas infinitatis et finitas finitatis. Zur Logik der Argumentation im Werk Giordano Brunos (1548–1600)." In *Nicolaus Copernicus—Revolutionär wider Willen.* Ed. G. Wolfschmidt, 157–66. Stuttgart: Verlag für Geschichte der Naturwissenschaften und der Technik, 1994.
- . "Bruno und Jungius. Die Materievorstellung in Giordano Brunos Frankfurter Schriften und ihre Rezeption durch Joachim Jungius (1587–1657)." *Zeitsprünge. Forschungen zur Frühen Neuzeit* 3,1/2 (1999): 39–49.
- . "Diesseits und Jenseits—Vorstellungen von der Seele in der Renaissance." In *Vom Jenseits.* Ed. E. Goodman-Thau, 71–78. Berlin: Akademie Verlag, 1997.
- . "Der Naturbegriff bei Giordano Bruno." (Giordano Bruno's Notion of Nature.) In *Der Naturbegriff in der frühen Neuzeit.* Ed. T. Leinkauf, 187–212. Tübingen: Niemeyer, 2005.

- . “Strukturwandel in der Posttraditionellen Gesellschaft.” In *Metaphysik und Hermeneutik, Festschrift für Hans-Georg Flickinger*. Eds. H. Eidam, F. Hermenau and D. De Souza, 269–81. Kassel: Kassel University Press, 2004.
- . “Das Individuum im Netz.” In *Vernetzung und Individualität*. Eds. H. Hamacher and F. Bunke, 117–30. Aachen: Shaker, 2006.
- Pabst, B. *Atomtheorien des lateinischen Mittelalters*. Darmstadt: Wissenschaftliche Buchgesellschaft, 1994.
- Ricci, S. “Die Rezeption Giordano Brunos in Frankreich und Deutschland von der zweiten Hälfte des 18. bis zu den Anfängen des 19. Jahrhunderts.” In *Giordano Bruno. Tragik eines Unzeitgemäßen*. Ed. W. Hirdt, 151–64. Tübingen: Stauffenburg Verlag, 1993.
- Spang, M. *Omnia homini similia sunt*. Munich: Wilhelm Fink Verlag, 2002.
- Tocco, F. “Le Fonti più recenti della filosofia del Bruno” (The sources in the reception of Bruno). *Rendiconti all’ Accademia dei Lincei. Classe di scienze morali, storiche e filosofiche* 1,7/8 (1892).
- Védrine, H. *La conception de la nature chez Giordano Bruno*. (Giordano Bruno’s conception of nature.) Paris: J. Vrin, 1975.
- . “Materie, Atom und Minima bei Giordano Bruno.” In *Die Frankfurter Schriften Giordano Brunos und ihre Voraussetzungen*. Eds. K. Heipcke, W. Neuser and E. Wicke, 127–34. Weinheim: VCH, 1991.
- Wildgen, W. *Das kosmische Gedächtnis. Kosmologie, Semiotik und Gedächtnistheorie im Werk Giordano Brunos (1548–1600)*. (The Cosmic Memory, Cosmology, Semiotics, and Theory of Memory in the Works of Giordano Bruno.) Frankfurt am Main: Peter Lang, 1998.
- Yates, F. A. *Die okkulte Philosophie*. Trans. A. Falbe. Amsterdam: Edition Weber, 1979.

NOTES

* Translated from German by Katharina Neuser-von Oettingen.

- 1 Bruno, *Opera latine conscripta* I, 3, 138sq.
- 2 In addition to studies like those of Tocco, Védrine, Wildgen, and Brockmeier, these include some texts by materialists like Kühlenbeck or Haeckel, who strain to portray Bruno as a protagonist of their own philosophical view. Ricci, “Rezeption,” 151–64.
- 3 Tocco, *Le fonti*, 3.
- 4 Védrine, *La conception*, 269sq; Védrine *Materie, Atom und Minima*, 127sq.
- 5 Tocco, *Le fonti*, 4.
- 6 Védrine, *Materie, Atom und Minima*, 127sq.
- 7 Cf. Neuser, *Naturbegriff*, 204sq.
- 8 Bruno, *De l’infinito* second dialogue, in *Œuvres complètes* IV, 145; *Spaccio de la bestia trionfante*, Epistola esplicatoria, in *Œuvres complètes* V, 1, 24sq. *Acrotismus* Assertiones in *Opera latine conscripta* I, 1, 8; *De immenso et innumerabilibus*, book 2, ch. 5 in *Opera latine conscripta* I, 1, 272; *De triplice. De minimi existentia* in *Opera latine conscripta* I, 3, 140; *Lampas* in *Opera latine conscripta* I, 1, 256; *De magia et theses de magia* in *Opera latine conscripta* III, 416, and *De rerum principiis* in *Opera latine conscripta* III, 510.

- 9 Neuser, *Naturbegriff*, 204–207; Maier, *Vorläufer*, 115sq.
- 10 Bruno, *De triplice*, *Contemplationes ex minimo* 6, in *Opera latine conscripta* I, 3, 209sq; Heipcke, et al., *Dialektik*, 134sq.
- 11 Galenus, *De elementis*, 413–508; Galenus, *On natural faculties*, 169.
- 12 Neuser, *Strukturwandel*, 269–81.
- 13 Neuser, *Traditionslinie*, 132sq; Neuser, “Tendenzen,” 300sq.
- 14 Neuser, *Individuum im Netz*, 117–30.
- 15 Descartes, *Geometrie, Meditationes*, vol. 6, 24; Holz, *Descartes*, 120–36.
- 16 Descartes, *Principia* II, 10sqq.
- 17 Leibniz, *Monadenlehre*, 11sqq.; Bruno, *De monade*, chap. 1, in *Opera latine conscripta* I, 2, 328.
- 18 Leibniz, *Hauptschriften*, I, 182.
- 19 Meister Eckhard and Nicholas of Cusa. This even holds, *mutatis mutandis*, for “Aristotelians” of the Middle Ages like Thomas Aquinas, etc.
- 20 Neuser, *Jungius*, 39–49.
- 21 Pabst, *Atomtheorien*, 317sq.
- 22 Aristotle, *Phys.* 6 in *Opera latine conscripta* I, 2, 399. Thomas Aquinas follows the Aristotelian argument. Cf. Neuser, *Naturbegriff*, 205sq.
- 23 Plato, *Timaios*, 43a in Bruno, *Opera latine conscripta* I, 2, 394.
- 24 Pabst, *Atomtheorien*, 323–26.
- 25 *Ibid.*, 50.
- 26 *Ibid.*, 21.
- 27 Bruno quotes Lucretius in Bruno, *De monade*, chap. 10, in *Opera latine conscripta* I, 2; Monti, *Lukretianismus*, 165.
- 28 Leucippus, Empedokles, and Demokritos are cited in Bruno, *De monade*, chap 10, in *Opera latine conscripta* I, 2; Laetius, *Leben*, book 9, 175.
- 29 Maier, *An der Grenze*, 13; Maier, *Vorläufer*, 27, 29.
- 30 Pabst, *Atomtheorien*, 323–26.
- 31 *Ibid.*, 330.
- 32 Laßwitz, *Geschichte*, 382sq is wrong, saying that Bruno has no physical concept of the atom.
- 33 Pabst, *Atomtheorien*, 323–26.
- 34 *Ibid.*
- 35 *Ibid.*
- 36 Bruno, *De monade*, chap. 2; Neuser, *Infinitas*, 160sqq.
- 37 Neuser, *Jungius*, 42.
- 38 Bruno, *De l’infinito*, second dialogue in *Œuvres complètes*, IV, 145; Bruno, *Acrotismus*, *Assertiones* in *Opera latine conscripta* I, 1, 81.
- 39 Bruno, *De monade*, chap. 5, in *Opera latine conscripta* I, 2, 399.
- 40 Maier, *Vorläufer*, 181, 27, 29. Cf. Bruno, *De minimo*, in *Opera latine conscripta* I, 3, 181sq, 212sq; Laetius, *Leben und Meinungen* chap. 7; and Neuser, *Infinitudo*, 10.
- 41 Maier, *Vorläufer*, 26sq.
- 42 Bruno, *De immenso*, book 4, chap. 2, in *Opera latine conscripta* I, 2, 12; *De triplice*, *Contemplationes ex minimo* 6, in *ibid.* I, 3, 209sq; *De triplice*, *Contemplationes ex minimo* 9, in *ibid.* I, 3, 222; *Articuli adversus mathematicos I* in *ibid.* I, 3, 533; I, 3, 17; *Articuli adversus mathematicos III*, in *ibid.* I, 3, 22sq; *Articuli adversus mathematicos VI*, in *ibid.* I, 3, 33.

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- 43 Bruno *De minimo*, in *Opera latine conscripta* I, 3, 211.
 44 Ibid.
 45 Bruno, *De monade*, chap. 5, in *Opera latine conscripta* I, 2.
 46 Galenus, *Elementos*, 445.
 47 Bruno, *De l'infinito*, second dialogue, 145.
 48 Bruno, *De monade*, ch. 5, *Opera latine conscripta* I, 2, 397.
 49 Ibid., 399.
 50 Ibid.
 51 Bruno, *De immenso*, book 1, chap. 1, in *Opera latine conscripta* I, 1, 205.
 52 Ibid., book 4, chap. 1, in *Opera latine conscripta* I, 2, 6.
 53 Ibid., book 4, chap. 7, in *Opera latine conscripta* I, 2, 39.
 54 Ibid., book 4, chap. 10, in *Opera latine conscripta* I, 2, 57.
 55 In Bruno, *De la Causa*, in *Œuvres complètes*, III, Bruno states a (Neo-)Platonic modification of the idea of matter, which is essentially based on the Aristotelian idea of substance. First, matter is substance (dial. 3, 169) and as such the power or potency (dial. 3, 203) and the substrate (dial. 3, 175). The *potentia* can be active or passive. The passiveness can be understood as a relative potency (dial. 3, 204) or as an absolute potency (dial. 3, 204). The form inherent in the matter is the *animus mundi* (dial. 2, 123), occurring therein as a formal principle (dial. 2, 127) and inspiring matter (dial. 2, 127). Furthermore, the *animus mundi* can be final, formal, or efficient cause (dial. 2, 115). In this note, I made use of an unpublished paper which Klaus Heipcke provided during a seminar at the Gesamthochschule Universität Kassel in the summer of 1993. Cf. Bruno, *De monade*, chap. 3, 351.
 56 Ibid., chap. 4, in *Opera latine conscripta* I, 2, 367; Neuser, *Diesseits*, 71–78.
 57 Neuser, *Jungius*.
 58 Bruno, *Acrotismus*, art. 6, in *Opera latine conscripta* I, 1, 100; *De immenso* 4, chap. 1, in *Opera latine conscripta* I, 2, 6; and chap. 7, in *Opera latine conscripta* I, 2, 39; *De immenso* 6, chap. 15, in *Opera latine conscripta* I, 2, 205; *De immenso* 4, chap. 10 I, 2, 57; *De monade* chap. 3, in *Opera latine conscripta* I, 2, 351; and *De monade*, chap. 5, in *Opera latine conscripta* I, 2, 399.
 59 Ibid. I, 2, 394.
 60 Bruno, *De rerum principiis*, in *Opera latine conscripta* I, 3, 510.
 61 For Aristotle, see Bruno, *De immenso*, chap. 5, in *Opera latine conscripta* I, 2, 399; for Plato, see Bruno, *De monade*, chap. 5, in *Opera latine conscripta* I, 2, 394.

ENRICO RENATO ANTONIO GIANNETTO
Giordano Bruno and the Relativity of Time

Ubi locata sunt et rerum duratio est. Ipsa est tempus [...]. ita neque est quod aliter unam omnium temporum normam investigemus, quia nulla est neque esse potest arithmetice, neque geometrice, neque physice [...].

De innumerabilibus, immenso et infigurabili, BOOK VII, CHAPTER 7.¹

For me, reading Bruno's thoughts about time was one of the most astonishing experiences. This is the reason I have chosen to present these excerpts here. Miguel Ángel Granada has written a wonderful paper on the concept of time in Giordano Bruno's work.² Milič Čapek has already translated into English some excerpts of Bruno's *Camoeracensis Acrotismus* in one of his books.³ However, whereas Čapek locates Bruno's thinking on time somewhere between absolutist and relational theories, Granada seems to consider it a theory of absolute time, which is related to the Newtonian one.

My astonishment relates to the fact that, three hundred years before Henri Poincaré's and Albert Einstein's theories of relativity,⁴ Giordano Bruno was the first person to develop an explicit theory of the relativity of time⁵ and, indeed, of time intervals within a scientific theory of the relativity of motion, of space lengths, and of time intervals;⁶ theories all worked out in the period between 1584 and 1588–1591. Certainly, there are very significant differences between these theories. However, in my opinion, the acknowledgement that the historical origins, the roots of the twentieth century's relativity ideas are to be found in Bruno's works completely changes our understanding of Bruno's role in the history of science and, in fact, changes the whole history of scientific ideas.

This has not yet been fully recognized for essentially two reasons: i) his heretical (according to the Catholic Church) ideas led him to the stake and caused his works to suffer the so-called *damnatio memoriae* and to be forgotten (some of his works still have not yet been translated from Latin); ii) his conception of Nature was not mechanistic and, thus, for the dominant

historiography, which identifies science with the mechanistic view, Bruno is not considered a scientist.

Bruno first espoused the Copernican world system, but then he went beyond Copernicus: He completely eliminated the solid spheres (even the eighth one conserved by Brahe) to which celestial bodies were considered bound. He also gave a physical basis to the new astronomical system; his alternative to Aristotle's physics was a mixed version of mediaeval impetus theory and ancient dynamic atomism⁷ where atoms are not purely material and inert but full of power and form (as in the original ideas of Democritus) in the same way a vacuum is not at all empty but full of ether.⁸ As it is well-known, atomism together with Christian theology led Bruno to the conception of an infinite universe made of infinite worlds.

Since the days of mediaeval natural philosophy, Christian theology had produced a form of reasoning *secundum imaginationem*, which involved a progressive deconstruction of Aristotelian physics and cosmology: this was the so-called *de potentia Dei absoluta* (on the absolute power of God) argument. Scientific imagination was strictly bound to theology.⁹ Since 1277 (the year in which the bishop of Paris, Étienne Tempier, had condemned many aspects of Aristotelian physics), something like a Christian natural philosophy had been tentatively under construction. Bruno introduced the idea that God's Love power is actually infinite¹⁰ and that, therefore, the resulting creation must also involve an infinite universe made of infinite worlds and infinite atoms, full of power. This theological perspective was in opposition to the Calvinist idea, to which the mechanistic conception of Nature as inert and passive matter is rooted,¹¹ stating that any power belonging to creation or to creatures would in effect have limited the omnipotence of God.

However, in at least one respect, Reformation theology was of fundamental importance for Bruno: The Reformation had paradoxically destroyed the univocal interpretation of the Bible, thereby enabling a potentially free interpretation of it. (It was only the reference to the Bible that had once stopped John Buridan, Nicole Oresme, Nicholas of Cusa, from affirming the motion of the earth, after all.)¹² Bruno argued that the Bible provides us only with ethical guidance and not scientific certitudes. Joshua's line in the Old Testament, "Stop Thou, sun" (Joshua 10:12–14), gives us no scientific assessment of the geocentric world system, but only an indication of the power of God and faith. Moreover, Bruno considered himself the only one to have understood the hidden cosmological and physical content of the Gospel revelation about a new earth and a new heaven: the new earth and new heaven shall be an infinite universe.

Bruno's ideas were the basis of Shakespeare's famous verses in *Hamlet* (2.2.120): "Doubt Thou the stars are fire. / Doubt that the sun doth move. / Doubt truth to be a liar. / But never doubt I love." The doubt about the substance of stars and about the motion of the sun, the doubt about the Bible's sentences as scientific truths, leaves only love as a source of certitude for human life. Further, the need for an infinite universe is to be ascribed to this same love, as Shakespeare writes in *Anthony and Cleopatra* (1.1.14–17): "*Cleo*: If it be love indeed, tell me how much. / *Ant*. There's beggary in the love that can be reckon'd. / *Cleo*. I'll set a bourn how far to be belov'd. / *Ant*. Then must thou needs find out new heaven, new earth." Relativity of space dimensions is present also in Shakespeare's *Hamlet* (2.2.260): "*Hamlet*: O God, I could be bounded in a nutshell, and count myself a king of infinite space." The relativity of time is even present in Shakespeare's *Romeo and Juliet* (3.5.45): "*Juliet*: Art thou gone so? Love, lord, ay husband, friend, / I must hear from thee every day in the hour/ For in a minute there are many days. / O, by this count I shall be much in years / Ere I again behold my Romeo."

Certainly, in Bruno's assessment of an infinite universe there were not only theological or ethical love arguments, but also scientific arguments. The scientific arguments of atomistic physics and cosmology, of the impetus theory (already mentioned above), the arguments based on the new astronomical observations of comets by Tycho Brahe, as well as those critical remarks by Bruno himself on the seeming fixity of stars—due to the distance from us—and on those mathematical abstractions which can never correspond to physical measures and to physical reality.

The mathematical cosmological model remained dominant throughout Aristotle's physics also; and it was destroyed by Bruno when he postulated a new non-hierarchical relationship between mathematics and physics.¹³

Thus, Bruno broke the spheres and the circles of the motion of celestial bodies: the motion of celestial bodies are completely free movement in empty (devoid of matter) ethereal infinite space due to the impetus every body has.¹⁴ No longer is a natural place related to a body, but the whole of infinite space is suitable for every body. Every body has a dynamical consistency and is in motion in infinite space, where there is no body at rest as well as no mathematical or physical centre. The absence of any body at rest implies the impossibility to give an absolute measure of motion and consequently the necessary relativity of all motions. In Bruno's perspective, the relativity of motion was not an argument against the reality of motion as it was for Parmenides, but, as it was for Heraclitus, motion and change were the fundamental characteristics of physical reality.¹⁵

Indeed, it was in the dialogue *La cena de le ceneri* (*The Ash Wednesday Supper*, 1584) that Bruno had written in England and published in London, whilst hiding away from the Catholic Inquisition, that Bruno first argued for the relativity of motion (so as to provide proof of the Copernican world system by discussing a complex mental experience, already used in a simpler form by Buridan, Oresme, and Nicholas of Cusa, and then also simplified by Galileo).¹⁶ The relativity of motion considered by Bruno was based on the idea of the participation of all the things belonging within a “system” in the motion of the system in such a way that any motion of (uniform or non-uniform, rectilinear or circular, or any curve) translation without rotations does not modify the phenomena. Thus, one cannot understand that the earth has a motion of translation revolution around the sun, because this motion does not affect any local phenomena. In any case, rotations make a difference in phenomena but not in laws, and they are intrinsically relative motions amongst the different parts of the body. Here, Bruno even argued for the relativity of gravity, producing—for the first time—a sort-of principle of dynamical general relativity.¹⁷

Galileo, in his *Dialogo sopra i due massimi sistemi del mondo* (1632),¹⁸ repeated some of Bruno’s argumentations (Bruno also considered the motion of something outside the system, but Galileo did not deal with it). However, he never mentioned him because of the Inquisition and, moreover, the fact that Bruno had been burnt at the stake. Thus, one has to speak about a Brunian and not Galilean “principle of relativity of motion.” Interestingly enough, this has no relation to the so-called “principle of inertia,” which the dynamical atomism of Bruno did not admit. It is only motion that can continue, whereas rest in the vacuum is unstable: according to the *coincidentia oppositorum*, rest, itself, is to be identified with motion at infinite velocity.¹⁹

The relativity of space is already implicit in its infinity without any centre, in the relativity of motion. Yet, in Bruno’s way of thinking, the relativity of space lengths and distances is also present. He discussed it in the *Camoeracensis Acrotismus* (1588, art. XXVII, XXXII, XXXIV, XXXV, and XXXVII), *De innumerabilibus, immenso et infigurabili; seu de universo et mundis libri octo*, (1591, Liber. IV, chap. VI), and—in the most detail—within *De triplici minimo et mensura ad trium speculativarum scientiarum et multarum activarum artium principia libri V* (1591, Liber. II, chap. V). Here, Bruno deduced the relativity of space lengths, starting from a radical epistemological critique of measurability and measurements: the atoms of bodies are in continuous motion like the atoms of measurement instruments; thus, motion affects measurements and implies limits on the possi-

bility to make exact measurements. From this point of view, measurements of space in different conditions of motion imply different space lengths.

The relativity of time follows also from the infinite universe, but in some way it is independent from infinity. Bruno discussed this consequence in *Camoeracensis Acrotismus* (1588, art. XXXVIII–XXXIX–XL) and in *De innumerabilibus, immenso et infigurabili; seu de universo et mundis libri octo* (1591, Liber. VII, chap. VII).

Granada²⁰ has clarified the whole Aristotelian background required to understand Bruno's argument (the chief reference is the fourth book of Aristotle's *ta physikà*). One needs to remember the Aristotelian definition of time, which was also assumed in mediaeval natural philosophy: time was physically and cosmically given by the motion of the so-called eighth sphere, the sphere of fixed stars, because this motion was perfectly uniform, continuous (eternal) and simple—as required by a definition of time—and all the other spheres participate in this motion. However, if the universe is infinite, than there is no (eighth) sphere and no *primum movens* which can transmit its motion to all the other things: there is no privileged, perfectly uniform and continuous (eternal) motion, available for the definition of time.

In *De innumerabilibus, immenso et infigurabili; seu de universo et mundis libri octo*, Bruno wrote: "Aristotle stated that time is given by the first moving body of the so-called eighth sphere, for its motion is simple, regular, continuous and, thus, it can be the measure of every motion...Where bodies are, there is duration of things, time...there is no reason to look for a common rule, a common measure of all times. There cannot be any such common measure from any point of view (physical, arithmetic, geometric). One cannot speak of a true, absolute measure of time: ...there is no regular motion...Why are you looking for that time which is nowhere? We have shown that there is nothing beyond the universe (for it is infinite; there is no vacuum, no time, no space, no body out of it); ...beyond all [worlds], motion, space, time, world, vacuum, unlimited space, uncountable bodies are everywhere."²¹

In article 38 of the *Camoeracensis Acrotismus*, Bruno had also written: "There are as many times in the universe as there are stars. Nor is it possible that there be such single motion in the universe which would be the measure of all motions...If it is impossible to divide uniformly a helical line and if the uniform motion—in the strict sense of the word—along this line is not natural, how can time and motion measure each other? For where is the measure of time? Where is that self-identical unit by which the equality will be judged an inequality of other intervals of time?"²²

Here the existence of a plurality of relative, different, and incommensurable times is clear because there are infinite motions in the universe and any could be used for the definition of time. There is no particular motion that can be elected for the definition of an absolute time. Indeed, the negation of the definition of absolute motion, as given by Aristotle's first heaven motion, implies the negation of the definition of absolute time. From Bruno's perspective, relativity of time appears even more clearly than in abstract arguments of special and general relativity. There is the incommensurability of the various motions; there is the impossibility of defining a uniform actual motion. There is no unity of time measure and, therefore, it is impossible to state exactly the equality or inequality of different time intervals. Thus, we have not a mere relativity of time concerning the choice of the origin of time (or the choice of the unity of the measure), but a complete relativity of time intervals corresponding to different heterogeneous times. The relativity of motions implies relativity of time: Thus, different motions define different, non-homogeneous, *proper* times, and so motion affects measures of time intervals, which depend on motion.

In article 39 of the *Camoeracensis Acrotismus*, Bruno had also written: "Motion is the measure of time rather than time being the measure of motion."²³ Aristotle's perspective, according to which time is the measure of motion, has indeed dominated up until today. Bruno turned this point of view on its head. If one assumes, explained Bruno, that time is the measure of motion, one must presuppose a measure of time by means of another motion, chosen for this aim. Thus, it should be said that motion is measured by motion. However, a motion to measure all the motions does not exist, and thus a motion to measure time absolutely does not exist, either. Therefore, time cannot be assumed to be the measure of motion and motion can be only a relative measure of time. Time is different from space: It is not an immobile container but it is a flux in which things participate at different rates. We can consider the limiting case in which, (whereas the remaining part of the universe is moving or changing) a particular body is at rest or is not changing. In this case, we cannot even speak of an individual time of the body at rest, we can only speak of a cosmic time in which this body does not move or change itself. Therefore, we can also speak of a time when a body is relatively at rest: we must conclude that we have (cosmic) time, even if there is no motion and that time is not the measure of motion. Time can be a measure of motion and rest. Indeed, it is motion that can relatively measure time, and not vice versa. In general, time cannot be understood in terms of uniformity or regularity of periodic (eternal)

motions or changes. As Bruno wrote: "Therefore, Aristotle should have related not time itself, but the knowledge of time to motion."²⁴ In general, time cannot be measured or known; time can only be measured and compared in very special cases concerning uniform motions or changes. Cosmic or universal time is not to be understood as, must not be confused with, absolute time: "Though time is some duration which can indeed be separately conceived and defined by mind, nevertheless, it is not found separated from things because it is predicated in relation to duration and to something which endures."²⁵ Absolute time was introduced by Newton as not related to things, but only to God, and it was conceived to be mathematically perfect, uniform, regular and continuous.²⁶ Bruno's cosmic time is related to the universe as given, without any Aristotelian distinction between matter and form, and it is not a common measure of all relative times (since such a thing cannot exist). Bruno's cosmic time is the entangled set of all the different relative times, which flow at different relative rates without any common rate. There is no common measure of all the different times: there is no minimum common multiple and no maximum common divisor. Cosmic time is not an absolute universal time, but the radical entangled temporality of the universe. *Coincidentia* can exist only in infinity (infinity is, in some way, the expression of incommensurability). Incommensurability of all different relative times cannot be overcome, but can be unitarily comprehended at infinity, within an infinite cosmic time. Infinite "finite times" of the infinite "finite worlds" are entangled in an infinite irreversible temporal complexity, which is not circular or linear in the infinite sphere of the universe, a place where this distinction no longer has meaning. While the universe endures infinite time, cosmic time is infinite and, thus, Bruno can understand—in a new way—even eternity. Eternity is not the absence of time, but the infinity of cosmic time.

As is well known, Galileo followed only Bruno's idea of a relativity of motion (limited to the case of uniform motions and considered as a kinematical relativity, not a dynamical one). Only Leibniz took up Bruno's idea of a general dynamical relativity of motion, time, and space (just not completely the one relating to time intervals and space lengths), giving it first a mathematical form.²⁷ Bruno's cosmic relativity theory was followed up on by Spinoza. This idea had a complex and discontinuous story—which cannot be recounted here—within different conceptions of Nature and of motion, space and time: finally, it was reconsidered by Henri Poincaré (influenced by Leibniz' physics) and (through the influence of Poincaré,²⁸ Spinoza, and Mach) by Albert Einstein who, at the time of the formulation

of the special and general relativity theories, was not aware of this long story. Bruno's argument was that in an infinite universe there is no center and, thus, no thing at rest which can constitute an absolute reference frame. The same perspective was in Spinoza's infinite universe and in Einstein's cosmological model of a finite but unlimited world—like a spherical surface with no center.²⁹

Bruno considered philosophical and physical thinking as a revelation of God into *physis*. One has to go beyond human simplified and so false mathematical *logos* and to look at the "*logos of physis*" in the subjective genitive sense (Heidegger also in some way followed Bruno).³⁰ Bruno's revelation was not simply a vision or a mystical intuition: it derived from a deconstruction of the whole western philosophical and theological tradition. His infinite new universe destroyed not only any physical and cosmological hierarchy but also any dualism between earth and heaven, matter and form, body and soul. His infinite new universe destroyed any anthropocentrism and any hierarchy among the different living beings, opening the way to a new non-specistic, non-anthropocentric ethics of universal love among all the living beings. Bruno, with Isaia and Jesus, has been calling us to see again the light of the universe, because we are still blind and we are in sin because we believe we can see (*John* 9). For we have, as Galileo said, confined the revelation of Nature within a finite book written in exact mathematical language and we have again lost the infinite universe and we have not accepted the relativity of our lifetime and of our being in the infinite universe.

BIBLIOGRAPHY

Primary sources

- Bruno, G. "Camoeracensis Acrotismus" (1588). In *Jordani Bruni Nolani opera latine conscripta*. Vol. I, 1. Ed. F. Fiorentino. Naples: Morano, 1879, reprint Stuttgart/Bad Cannstatt: Frommann, 1962.
- . "De innumerabilibus, immenso et infigurabili; seu de universo et mundis libri octo" (1591). In *Jordani Bruni Nolani opera latine conscripta*. Vol. I, 2. Ed. F. Fiorentino. Naples: Morano, 1884, reprint Stuttgart/Bad Cannstatt: Frommann, 1962.
- . *De l'infini, de l'univers et des mondes. De l'Infinito, Universo e Mondi. Œuvres complètes*. Vol. 4. Ed. G. Aquilecchia. Trans. J.-P. Cavaillé. Paris: Les Belles Lettres, 1995.
- . *Le souper des cendres. La cena de le ceneri. Œuvres complètes*. Vol. 2. Ed. G. Aquilecchia. Trans. Y. Hersant. Paris: Les Belles Lettres, 1994.
- Galilei, G. *Dialogo sopra i due massimi sistemi del mondo, tolemaico e copernicano* (1632). Ed. L. Sosio. Turin: Einaudi, 1970.

Secondary sources

- Čapek, M. *The Concepts of Space and Time. Their Structure and Their Development*. Dordrecht: Reidel, 1976.
- Funkenstein, A. *Theology and the Scientific Imagination. From the Middle Ages to the Seventeenth Century*. Princeton: Princeton University Press, 1986.
- Giannetto, E. R. A. "Henri Poincaré and the rise of special relativity." *Hadronic Journal Supplement* 10 (1995): 365–433.
- . "La relatività del moto e del tempo in Giordano Bruno." *Physis XXXVIII* (2001): 305–336.
- . *Saggi di storie del pensiero scientifico*. Bergamo: Sestante for Bergamo University Press, 2005.
- . "Giordano Bruno and the Origins of Relativity." In *Albert Einstein, Chief Engineer of the Universe. One Hundred Authors for Einstein*. Ed. J. Renn, 80–83. New York: Wiley, 2005.
- . "Da Bruno ad Einstein." *Nuova Civiltà delle Macchine* 24 (2006): 107–137.
- . "The Electromagnetic Conception of Nature at the Root of the Special and General Relativity Theories and its Revolutionary Meaning." *Science & Education* 18 (June 2009): 765–81. Available at: <http://www.springerlink.com/content/8163x240217m3l51/>
- . "Giordano Bruno." In *New Dictionary of Scientific Biographies*. Vol. 1. Ed. N. Koertge. Detroit: Thomson Gale, 2008, 423–25.
- . *Un fisico delle origini. Heidegger, la scienza e la Natura*. Rome: Donzelli, 2010.
- . "Il rifiuto della distinzione fra 'potentia assoluta' e 'potentia ordinata' di Dio e l'affermazione dell'universo infinito in Giordano Bruno." *Rivista di storia della filosofia* 94 (1994): 495–532.
- . "Palingenio, Patrizi, Bruno, Mersenne: el enfrentamiento entre el principio de plenitud y la distinción potentia absoluta/ordinata Dei a proposito de la necesidad e infinitud del universo." In *Potentia Dei — L'onnipotenza divina nel pensiero dei secoli XVI e XVII*. Eds. G. Canziani, M. A. Granada and Y. C. Zarka, 105–34. Milan: Franco Angeli, 2000.
- . "The Concept of Time in Giordano Bruno: Cosmic Times and Eternity." In *The Medieval Concept of Time. The Scholastic Debate and its Receptions in early Modern Philosophy*. Ed. P. Porro, 477–506. Leiden: Brill, 2001.

NOTES

- 1 "Where bodies are, there is duration of things, time... there is no reason to look for a common rule, a common measure of all times. There cannot be any such common measure from any point of view (physical, arithmetic, geometric)." Bruno, *Opera latine conscripta* I, 2, 257.
- 2 Granada, *The concept of time in Giordano Bruno*.
- 3 Čapek, *The Concepts of Space and Time*, 57–63, 189–93.
- 4 Giannetto, *Da Bruno ad Einstein*.
- 5 Giannetto, *Giordano Bruno*.
- 6 Giannetto, *La relatività del moto e del tempo in Giordano Bruno*; Giannetto, *Giordano Bruno and the Origins of Relativity*.

- 7 Giannetto, *Saggi di storie del pensiero scientifico*, 57–63.
- 8 Giannetto, *La relatività del moto e del tempo in Giordano Bruno*.
- 9 Funkenstein, *Theology and the Scientific Imagination*.
- 10 Granada, *Palingenio, Patrizi, Bruno, Mersenne*, 116–24.
- 11 Giannetto, *Saggi di storie del pensiero scientifico*, 133–38, 235–59; Giannetto, *Heidegger e la questione della fisica*, chap. 8.
- 12 Giannetto, *Saggi di storie del pensiero scientifico*, 185–98.
- 13 Giannetto, *La relatività del moto e del tempo in Giordano Bruno*.
- 14 Ibid.
- 15 Giannetto, *Saggi di storie del pensiero scientifico*, 43–57.
- 16 Ibid., 185–98.
- 17 Giannetto, *La relatività del moto e del tempo in Giordano Bruno*.
- 18 Galilei, *Dialogo sopra i due massimi sistemi del mondo*.
- 19 Bruno, *De l'Infinito, Universo e Mondi*, in *Dialoghi filosofici italiani*, first dial., 341–3.
- 20 Granada, *The concept of time in Giordano Bruno*.
- 21 Bruno, *De innumerabilibus, immenso et infigurabili*, Liber VII, Caput VII, 256–58.
- 22 Bruno, *Camoeracensis Acrotismus*, Art. 38, 143–60.
- 23 Ibid., art. 39, 146–8.
- 24 Ibid., art. 40, 148–50.
- 25 Ibid., art. 39, 146–8.
- 26 Giannetto, *Saggi di storie del pensiero scientifico*, 235–59.
- 27 Ibid.
- 28 Giannetto, *Henri Poincaré and the rise of special relativity*.
- 29 Giannetto, *The Electromagnetic Conception of Nature*.
- 30 Giannetto, *Heidegger e la questione della fisica*.

ARCANGELO ROSSI

Giordano Bruno and the New Order of Nature
between Copernicus and Galilei

SMITHO: Di grazia fatemi intendere che opinione avete del Copernico.
TEOFILO: Lui avea un grave, elaborato, sollecito, e maturo ingegno: uomo che non è inferiore a nessuno astronomo che sii stato avanti lui, se non per luogo di successione e tempo; uomo che quanto al giudizio naturale è stato molto superiore a Tolomeo, Ipparco, Eudoxo, e tutti gli altri, ch'han caminato appo i vestigii di questi: al che è divenuto per essersi liberato da alcuni presuppositi falsi de la comone et volgar filosofia, non voglio dir cecità. Ma però non se n'è molto allontanato: per che lui più studioso de la matematica che de la natura, non ha possuto profundar, e penetrar sin tanto che potesse a fatto toglier via le radici de inconvenienti e vani principii, onde perfettamente sciogliesse tutte le contrarie difficoltà, e venesse a liberar e sé et altri da tante vane inquisizioni, e fermar la contemplazione ne le cose costante et certe. Con tutto ciò chi potrà a pieno lodar la magnanimità di questo germano, il quale avendo poco riguardo a la stolta moltitudine, è stato sì saldo contra il torrente de la contraria fede? e benché quasi inerme di vive ragioni, ripigliando quelli abietti e rugginosi fragmenti ch'ha possuto aver per le mani da la antichità, le ha ripoliti, accozzati e risaldati in tanto con quel suo più matematico che natural discorso, ch'ha resa la causa già ridicola, abietta e vilipesa, onorata, pregiata, più verisimile che la contraria; e certissimamente più comoda et ispedita per la teorica et ragione calcolatoria. Cossì questo alemano benché non abbi avuti sufficienti modi per i quali, oltre il resistere, potesse a bastanza vincere, debellare, et supprimere la falsità; ha pure fissato il piede in determinare ne l'animo suo, et apertissimamente confessare ch'al fine si debba conchiudere necessariamente che più tosto questo globo si muova a l'aspetto de l'universo, che sii possibile che la generalità di tanti corpi innumerabili, de quali molti son conosciuti più magnifici e più grandi, abbia al dispetto della natura e ragioni, che con sensibilissimi moti cridano il contrario, conoscere questo per mezzo e base de suoi giri et influssi.

La cena de le Ceneri, FIRST DIALOGUE.¹

As Giovanni Aquilecchia reminds us, Bruno's *Ash Wednesday Supper* takes place halfway between the publication of Nicolas Copernicus's *De revolutionibus* (1543) and the beginning of the composition of Galileo Galilei's *Dialogue on the World Systems* (1624). The *Supper* was, in fact, published in London in 1584.² Comparison of the three texts shows a precise and rigorous correspondence between the latter two. Yet, Galilei never quotes Bruno; he never refers to "the Nolan," neither in the published works nor in the correspondence. He was reproached for this by Kepler in a private conversation with Martin Hastal, a courtier of Rudolf II and librarian of the imperial court in Prague—as is testified to by the lively letter written by Hastal himself and sent by him to Galileo on April 15, 1610. In the letter are documented both Kepler's convinced appraisals of Galilei's *Sidereus Nuncius* and his reproaches to Galilei for not remembering his predecessors, Bruno included, in the same work.³ Moreover, Kepler often remembers Bruno, in particular as the man who had conceived of infinite worlds and earths before Galilei.⁴

It would be too easy to regard Bruno's recent death at the stake and the listing of his works on the Index as deterrents against quoting the Nolan. It is less trivial to think of a deep philosophical divergence between the two Copernicans. In any case, it is true that deep philosophical divergences separated them. In fact, while Bruno was inclined to conceive of the motion attributed to the earth by Copernicus as an expression of a more general concept of universal animation extended to the infinite; Galilei was instead interested in mathematically and phenomenally comprehending the world according to the Copernican hypothesis. Nevertheless, a certain affinity exists between the two, which explains the structural analogies between their works, singled out by Aquilecchia.

The most important point of agreement, soon made explicit at the start of the two works (in the First Dialogue of the *Supper* and in the First *Giornata* of the *Dialogue*), concerns the common conception of Copernicus's work not as a simple mathematical hypothesis with which to make predictions and calculi of celestial motions, but as a cosmological proposal to reflect the real structure of the universe. Hence, Bruno and Galilei took a definite stand, in the wake of Copernicus himself, on the prolonged controversy which opposed conventionalist mathematical astronomers and realist naturalistic ones.⁵ Bruno—in particular, in the *Supper*—places his entire presentation of Copernicus's thinking into conflict with the instrumentalist interpretation of the new system, which was especially widespread in Protestant milieus at Wittenberg in Germany and at Oxford in England. From Oxford also came the two "guys" (Nundinio and Tor-

quato) discussing Copernicus with the Nolan at the occasion of the supper, recalled in the dialogue, held at Fulke Greville's home on the previous Ash Wednesday. Analogously, Galilei presents the Copernican hypothesis as a physical hypothesis and not only as a mathematical device. Just like Nundinio and Torquato, the Oxford Aristotelians of the *Supper*, Simplicio opposes in the *Main Systems* the realist conception of the Copernican universe as lacking a unique centre of motions and abolishing the distinctions between the earth and heavenly bodies—in particular, the moon, the planets, and the sun.⁶ For this purpose, after quoting it in full, Bruno frankly attacks the anonymous “superliminary epistle” of *De revolutionibus*—which was, in fact, not written by Copernicus, but by the Lutheran minister A. Osiander. Although he did not yet know his identity,⁷ Bruno describes him as an “ignorant and presumptuous ass.”⁸ It was exactly that epistle which suggested considering the Copernican hypothesis as neither true nor even probable, but only as useful for saving the appearances and not to really explain the world.⁹ Osiander in fact argued that the Copernican hypothesis, taken not as a mere instrument of prevision and calculus, but as a realistic representation of the world, would be incompatible with precise astronomical observations. In particular, he noticed that the observable dimensions of Venus, because of the great variation of the distance between Venus and the earth no longer placed at the centre of the system, that is, in particular, at the centre of the motions of Venus, should vary very much, what does not turn out to be the case—at least, for the naked eye. (Galilei's telescope, which restores the congruency between observation and theoretical prevision, would still not be available for a long time).¹⁰ Bruno acutely replies to the objection in his defence of the Copernican hypothesis by supposing that a ‘true optics’ must take into account not only the dimensions, but also the degree of luminosity or brilliance, which is less variable. Thus, at a great distance, the appearance of almost point-like luminous bodies does not alter very much—in any case, not in proportion to the distance. The reference here is probably, as suggested by Hilary Gatti,¹¹ to Alhazen, the great Arabian optician of the eleventh-century who had written in his *Perspectiva* how eyesight may “be mistaken in arguing,” for example, that a planet and a star are at the same apparent distance, though they are in effect very far from each other. Another illusion of eyesight would be linked to the obscuring of dull bodies by strong light sources, so that, for example, the light coming from luminous bodies could hide from us innumerable dull bodies placed between us and the luminous bodies themselves. Bruno thinks that such dull bodies, made invisible, are also not far from us, near to the sun.¹² It is

very likely that Kepler just hinted at this anticipation of Bruno's when he reproached Galilei for not remembering Bruno in his *Sidereus Nuncius*—when, for example, Galilei talks about Jupiter's moons, which he had discovered by means of the telescope, but which are obscured by Jupiter itself when one tries to observe them with the naked eye.¹³ However, it is already possible, in their peculiar approaches to Osiander's anti-Copernican objection, to catch the difference, notwithstanding their common realist interpretation of the new system, between Bruno's and Galilei's methods: the former develops ingenious qualitative intuitions by an original and deep reading of classical *auctores*, by also comparing them carefully according to the principles of the great humanistic philology. Galilei actually carries out his own new observations (also by using new instruments like the telescope) and new calculations—for example, regarding the exact variation of the actual dimensions of the visible body of Venus, which is variably illuminated, totally or partially, by the sun in the geometry of the new system¹⁴—thus transforming intuitions into science.

Yet, if following Aquilecchia's comparison, Bruno's text is considered in the background of Galilei's; we must note that, even in the structure of the works and in their partitions, common intentions, perspectives, and convictions are expressed, though with often different performances and developments. First of all, one common theme is fundamental both in the First Dialogue of the *Supper* and in the First *Giornata* of Galilei's *Dialogue*—namely, the effort to cancel the Aristotelian distinction between heavenly and sub-lunar worlds. In both cases, we have a clear-cut affirmation of the unity of physics, accompanied by an explicit invitation to look at the Earth from the heavens, at least (with particular insistence by Galilei, but also, if one pays enough attention, by Bruno) from the moon¹⁵—hence, to realize that the heavens are like the earth and that, vice versa, the earth appears similar, if seen from outside, to celestial bodies. Still, there is something more here referring not only to physics, but to metaphysics and shared values that, notwithstanding the great differences, unite Bruno and Galilei. It is about a new idea of dignity and perfection, on account of which change, life, generation, corruption, birth, and death are no longer marks of inferiority and imperfection attributed to the Earth, the “dregs of the world.” On the contrary, these characteristics are spread to all the parts of the universe, which then ceases to be a motionless Neoplatonic heaven separated from a vile earth, but rather appears as an actual or possible seat of life—that is, of true perfection—decidedly identified with movement, life, transformation, and vicissitude.¹⁶ That explains, for example, the genuine bother with which Galilei comments on the Neoplatonic

emphasis with which Copernicus exalted the immobility of the sun as the centre of the universe—or, better still, its “oil-lamp” and God’s visible image. “Ma di grazia,” says Galileo, “non intrecciamo questi fioretti rettorici con la saldezza delle dimostrazioni, e lasciamogli a gli oratori o più tosto a i poeti.”¹⁷ It is well known that Galilei was very much engaged in studying the sun’s spots, signs of mobility and transformation in the sun,¹⁸ and especially that Bruno soon criticized the Copernican idea of the centrality of the sun in order to affirm the infinity of the universe, haunted by the different star systems, intended as true worlds well beyond Copernican heliocentrism.¹⁹ Yet, this is an extrapolation of the Copernican hypothesis by Bruno, which Galilei did not want to draw, in agreement here with his rival/friend Kepler, who, if ever, preferred to talk of an immense universe rather than a positively infinite one.²⁰ Here again relevant differences are singled out between Bruno and Galilei, even if both moved beyond Copernicus; for neither believed any longer in the ‘embodied’ geometry of celestial spheres, in which Copernicus still believed,²¹ even though he no longer considered it geocentric. In truth, it was Tycho Brahe, Kepler’s teacher, who had shown by observations and calculations that the crystalline spheres of the closed cosmos were drilled by motions of celestial bodies, and then that they lacked any sort of consistency, physical efficiency, and movement transmission function.²²

In particular, the end of crystalline spheres took away any meaning from the third motion attributed to the earth by Copernicus, which consisted of a constant re-alignment motion in the terrestrial axis to maintain the parallelism that the curvature of the crystalline sphere—in which the earth, too, is set rotating around the sun in the Copernican hypothesis—would instead hinder.²³ Copernicus had, as a great mathematician and astronomer, ingeniously used this traditional device of his system by attributing a generally shorter period than that of the annual motion of revolution of the earth itself to this third motion,²⁴ with different variations and anomalies²⁵ to account for the fundamental phenomenon of the precession of the equinoxes. In fact, it consists of the anticipation of the return of the spring equinox before the annual revolution period is achieved, and it can be described as an imperfect parallelism of terrestrial axis during the time, as the period of this precession motion is of long duration, about 26,000 years, and not at all uniform. It must be said that the Copernican calculation, using the third motion (attributed, as we have seen, for traditional reasons, to the earth), though with marginal defects due to the complexity of the phenomenon, substantially succeeded in resolving the problem by doing without the spheres placed beyond the

eighth fixed stars sphere, that is the ninth and tenth—which had been introduced on purpose by Arabian astronomers.²⁶ In fact, the *Tabulae Prutenicae* and the connected Gregorian reform of the calendar in 1582 are based on his work.²⁷ In Galilei's time, the problem was then essentially overcome—in contrast to Bruno's time, at least from the point of view of physical reality, in which Bruno was above all interested. Then in fact, as the belief in crystalline spheres was fading away, the third motion of axis parallelism could no longer be used by attributing a period and specific anomalies to it in order to reproduce the phenomenon. Hence, it was on purpose then that Bruno in the *Supper* directly introduced the precession motion with its very long period as a third motion of the earth (a slight perturbation of the natural axis parallelism) and its anomalies as a fourth motion.²⁸ Certainly, he made some miscalculations²⁹ (which add to the observation mistakes which Copernicus himself had inherited from ancient and medieval astronomers).³⁰ Even though, at least qualitatively, he succeeded in accounting for the phenomenon in its effective component of 'nutations,' or trepidation and oscillation of the equinox circle.³¹ From this point of view, the image of Bruno as being totally ignorant of mathematics and the technical aspects of Copernicanism appears refuted, also in regards to other aspects of his reading of *De revolutionibus*.³² On the other hand, this charge came from the neo-Aristotelian Oxford doctors, and it was reciprocal. It appears to be linked rather to the metaphysical and cosmological conflict which opposed them, as the Oxford doctors (who, as indicated before, inclined to a conventionalist use of the Copernican hypothesis) were scandalized by Bruno's conception of the earth and of the heavens as totally homogeneous. Moreover, Bruno mocks one of the two Oxford representatives in the *Supper*, Torquato, as someone who did not understand anything of the sometimes undoubtedly difficult Copernican diagrams.³³

In short, with regard to what not only Frances A. Yates³⁴ (who insists on denying any science in Bruno), but also Hélène Védérine³⁵ (who nevertheless has a different opinion on the subject) considers Bruno's "Copernican error," it does not seem to be due to banal ignorance or ingenuousness, but to objective difficulties and even ambiguities within the Copernican text. What is it about? Bruno at a certain point sets the earth and the moon in motion on the same epicycle around the sun³⁶ while, on the contrary, he should have placed the moon on its own epicycle rotating around the epicycle of the earth, so adopting one of the possible Copernican solutions (the epicyclical one). The other equivalent (the eccentric one), which Copernicus suggested in the same place,³⁷ consisted, on the contrary, in placing the earth on an eccentric circle (and the moon, correspon-

dently, on an epicycle of the eccentric itself). Copernicus's ambiguity then lay on the contrary in representing the earth in motion on a concentric circle around the sun and the moon on its own epicycle around the earth in a generic and simplified way in Book I.³⁸ This, in contrast to Book III, implied that the sun, contrary to observations, must appear from the earth always in the same dimensions. Therefore, Bruno, substantially following the former Copernican solution, also places the earth on an epicycle—in particular, on that of the moon³⁹—just to account for phenomena (notwithstanding the fact that Copernicus himself later applied that solution more correctly to the motion of the moon around the earth, by placing the moon on a further epicycle (epi-epicycle) rotating around what was independently attributed to the earth).⁴⁰ Why? In fact, it is not at all compatible with the position of the moon as a satellite of the earth, even though Bruno's confusion may be perhaps explained by his conception of only two universal kinds of celestial objects (apart from the comets, which are for him only earths obliquely illuminated)—namely, hot suns and cold earths—and then he does not clearly distinguish between the earth and the moon, both cold and then placed on the same level.⁴¹ Moreover, it is possible to look at the placement of the earth and the moon on the same orbit as a Pythagorean reminiscence, and it is well known how highly Bruno regarded the Pythagorean tradition.⁴² In particular—at least, keeping to the doxographers Diogenes Laertius and pseudo-Plutarch⁴³—the Pythagoreans Nicetas and Philolaus (not by chance described shortly before as Copernicus's forerunners for attributing motion to the earth)⁴⁴ would have, for reasons of symmetry, conceived of the presence of an anti-earth, diametrically opposite to the earth on the same orbit (circling the central fire around which all celestial bodies would rotate), just the same way as in Bruno's text the moon came to be diametrically opposed to the earth on the same epicycle by rotating around the sun. However, afterwards, in the following work, *De immenso et innumerabilibus*, Book III,⁴⁵ Bruno re-establishes the position of the moon with regard to the earth on its own epicycle, but makes the earth move on a concentric circle around the sun. That does not explain appearances such as variations in the sun's dimensions. As he does not believe in the spheres, instead of taking recourse to an eccentricity of the earth (the second Copernican solution) in order to resolve the problem, Bruno, in the final analysis, adopts an animistic explanation of the variations in solar appearances as seen from the earth: the soul of the earth would drag the earth with relative freedom and then to variable distances around the sun, in order to draw life, heat, and motion from it.⁴⁶ Moreover, in the *Supper*, Bruno had already accused Copernicus

of being too linked to a mathematical, non-physical view of the reality of phenomena.⁴⁷ Incidentally, Galilei—in contrast to Kepler and even, as we have seen, to Bruno in his reading of Copernicus—did not take much care with the precise mathematical reconstruction of the orbits of heavenly bodies. For simplicity's sake, he conceived of the planets as moved by inertial motion on concentric circular orbits around the sun. Concentrating on the observation and discovery of new astronomic phenomena and the unification of physics, he even declared, as we have already recalled,⁴⁸ that Copernicus no longer believed in spheres and was therefore indifferent to alternative geometrical solutions, which is clearly not true.

We can now reach the point at which Bruno's philosophy of nature, with its aspiration for a unified physics of celestial and terrestrial phenomena, mostly coincides with Galilei's new science. Copernicus's closed world—which, although heliocentric and widened, was still Aristotelian and shut inside crystalline spheres—posed gigantic problems of physical understanding, especially that of building a new physics compatible with his extraordinary hypothesis, which he declared he had drawn from ancient Pythagoreans (there meeting Bruno, who was, as we have seen, devout to the Pythagorean tradition) and which was destined to make the solid spheres in which he still believed explode. There had already been re-elaborations of Aristotelian physics—in particular, by the *impetus* physicists, especially the Parisian Buridan and Oresme in the fourteenth century—that could pave the way to justifying the Copernican hypothesis on the physical level, not only on the strictly astronomical-mathematical one.⁴⁹ In fact, they attributed a certain duration ability to motion in general, so that it could go on even when the mobile was no longer driven by its motor.⁵⁰ This precious admission beyond Aristotelian physics then provided an explanation as to how it is that we do not notice terrestrial motion, even though we are subject to it. Oresme, in fact, introduced the hypothesis of terrestrial motion in his commentary on Aristotle's *De coelo* as an at least plausible one—provided that the conservation of circular motion, transmitted to falling bodies by the air rotating with the terrestrial surface, be admitted.⁵¹ In particular, Oresme introduced the analogy of the ship, in which a released body falling from the top of the mast would fall exactly at its feet, notwithstanding the motion of the ship in the meantime. (To be precise, Oresme talks about an arrow which, hurled upwards aboard the ship, would fall at the same point on the ship where it would have fallen if the ship had not been in motion.) The point is that the ship constitutes a mechanical system, characterized by the common motion of all its parts—unobservable, as such, from inside the system and so removed from any

absolute Aristotelian place—as every system differently defines the places inside itself, according to the general motion which characterizes it. Nevertheless, there was still a fundamental ambiguity in the Parisian physicists' *impetus*, lying in the dependence of the continuous persistence of *impetus*, conceived as an impressed force—that is, not yet a modern inertia, which is not caused by an impressed force—on the presence of Aristotelian elements (water, air, earth, and fire), still necessarily influencing the motion of terrestrial bodies and characterized in turn by a natural absolute motion still linked to Aristotelian places. In particular, the atmosphere was characterized by this absolute motion, for it naturally moved in a circle like the terrestrial surface; thus, it continually pushed the heavy bodies. Without this motion, we cannot know anyway how long *impetus* could last without becoming exhausted. In short, it is still a natural, specific, and qualitatively differentiated motion which continually drives all things, and which prevents all motions from being uniformed in a relativizing-geometrizing process of physical space that no longer admits qualitative distinctions between natural and violent motions.⁵²

Things become even worse with Copernicus, if that is possible. In the fifteenth century, Cusanus—the “divine” Cusanus, as Bruno calls him—had quite audaciously affirmed the full dependence of spatial relationships on movement in an undifferentiated and homogeneous way, without distinguishing between natural and violent motions. Cusanus, however, made this affirmation by developing a view of the unity of opposites and of everything with everything else—of centre and periphery and of parts with their whole—rather than in the framework of a precise theoretical analysis of movement or mechanical processes.⁵³ Certainly, in Bruno, too, we find similar aspects, and there is certainly a heritage from Cusanus; yet, there is in Bruno a stronger explicative component made of distinctions and concrete characterizations beyond Cusanus. As for Copernicus' physics, we can instead speak about regression with respect to the Parisians themselves. Aristotelian objections to terrestrial motion are in fact discussed by Copernicus by explicitly assuming a natural influence between the terrestrial globe and heavy bodies. Therefore, only thanks to their terrestrial nature would they follow the motion of the earth, even if they were detached from it. Thus, we have a regression with regard to the embryo of the mechanical system introduced by the Parisians, even if Copernicus also speaks about a circular natural *impetus* of the Earth, possibly transmitted through the ‘terrestrial’ elements earth, water, air, and fire to bodies of the same ‘terrestrial’ nature. In Copernicus's case and in contrast to the Parisians, without natural *impetus*, possibly transmitted by those elements to

bodies of the same nature, not only would we not know how long a continuous motion would last, but it might never even arise.⁵⁴ Then Copernicus even arrives at the absurdity of letting us think that a Martian or Venusian body, although detached from its sphere, would, driven by its nature, irresistibly tend to return to its sphere and would not permit any different system (into which it might run) to capture it, by making any possible motion to return to its sphere.⁵⁵ What could be more Aristotelian? This is the reason why Galilei said “*l sistema copernicano mette perturbazione nell’universo di Aristotele, ma noi trattiamo dell’universo nostro, vero e reale,*” in the *Dialogue*.⁵⁶ Notwithstanding the admiration he held for Copernicus—to the point that, as he said, he could not stop admiring him for going with his reason well beyond sensory evidence by doing violence to it⁵⁷—so echo analogous affirmations from Bruno, as already indicated, of both criticism and eulogy.⁵⁸

Thus, we arrive at Bruno, in whom—notwithstanding all his animism, vitalism, and panpsychism—the essential passage towards the modern notion of the mechanical system and Galilei’s relativity principle is still achieved.⁵⁹ Bruno was the first to deny any distinction of nature among moving bodies, physically considered with regard to the various mechanical systems in which they participate, expressed in sentences which almost literally crop up in Galilei. The relativity of motion is not only optical and apparent, but also dynamical. In fact, there is no experiment, no mechanical effect in a position to distinguish one mechanical system from another which is in uniform motion relative to it. The hand itself that throws a stone might belong to one system or another, exclusively dependent on the fact of being animated by the general motion of one of them (in the language of *impetus* theory: if it receives a virtue or an impressed force from the system independent from its particular motions; or, alternatively, if the throwing of the stone is effected by the hand of a person travelling on a ship or by another one which is motionless on the bank). That general motion will be impossible to observe from inside the system (that is, the ship or the bank) itself, but only from outside, independent from the origin and nature of that motion, be it natural or violent, the one being equivalent to the other.⁶⁰ Exactly like Bruno, Galilei indulges his whims in imaging so many experiments, so many movements inside the system, participating in the general motion of this one without any revelation of such general motion from inside—for example, jumping up and falling down again in the same place while keeping one’s relative position, or throwing a ball or a stone in any direction and with any motion while obtaining the same displacement inside the moving system, etc.⁶¹—provided that, as

Bruno says, the system itself (that is, the ship) does not make “slopes”;⁶² or, as Galilei says, its motion is “uniform and fluctuating hither and thither.”⁶³ Thus becomes apparent the equivalence of all the systems which are inertial or not subject to accelerations. What matters is the fact that there is no longer a *difference* in nature and origin of inertial motions, but *equivalence*—provided that they be truly uniform, not only optically, but also dynamically relative. Then there emerges a vision of a geometrized physical space which is completely uniform and indifferent. It no longer contains natural places and privileged directions, but is indifferently inhabited by mechanical systems, each of which has its stillness or uniform motion state, absolutely equivalent, a fitting basis for a physical description characteristic of classical science, which Bruno was the first to audaciously affirm.⁶⁴ In addition, he conceives this space as infinite and as containing matter everywhere; for, in his view, there are no more physical limits like obsolete crystalline spheres, but only mere geometrical limits to the possibility of infinite extension.⁶⁵

Another discourse, with regard to this “foundational discourse” consisting of geometrizing and infinitizing physical space (towards the latter, as already seen, Galilei had a much more prudential attitude than Bruno)⁶⁶ is the discourse of the inner constitution of the physical world, referring to the structure of matter and the forces inhabiting it. Even here, there is a general convergence between Bruno and Galilei, together with a deep difference in method and perspectives. Both lean towards atomism, in such works as Bruno’s Frankfurt poems and Galilei’s *Assayer* and *Discourses and Mathematical Demonstrations*. They speak about “minima quanta”—i.e., finite and not infinitely divisible elements of reality—in opposition to Aristotle. (Actually, Galilei speaks about “minima non quanta,” too, with regard to light in the *Assayer*⁶⁷ and even to fluids in the *Discourses*,⁶⁸ so establishing their infinite divisibility and confirming an ambiguous, complex relationship towards the Aristotelian tradition, which conceives “minima” as divisible).⁶⁹ They also speak, respectively, about an ether traversed by light (Bruno—“the substance simply put among bodies, and what is all around bodies”)⁷⁰ and, more immediately, about light permeating empty space (Galilei),⁷¹ as a continuous substrate of the atomic world. Bruno speaks at length imaginatively about the inner structure of atoms and their relationships, starting from the distinction between “minimum in genere” (that is, Aristotelian and divisible) and “minimum absolute” (that is, atomistic and indivisible).⁷² Galilei, however, although developing the same distinction, only drops short hypothetical hints.⁷³ We are confronted with different epistemologies. Bruno, in fact, starting from

the Renaissance tradition and Cusanus's "coincidentia oppositorum,"⁷⁴ affirms the impossibility of speaking of such reality (conceived as vitalistic and animated by intrinsic non-mechanical forces) without referring to subjective criteria, to language and concepts also linked to mnemotechnical and Pythagorean symbolism, thereby openly assuming elements which are linked to human subjectivity.⁷⁵ Galilei instead exalts the absolute objectivity of the atomic world, although it is not seen by us, but is subject to further possible investigation in as many as possible experimental and mathematical terms, reduced to most evident geometrical and mechanical properties.⁷⁶

We again find some affinities between Galilei and Bruno, notwithstanding all the methodological differences, in the conception of the forces which dwell in the world. In particular, concerning a Copernican universe and the forces, which link the sun and planets like the earth (in Bruno, the stars in general and their planets). First of all, although both adhere to the modern hypothesis of matter homogeneity, neither Bruno nor Galilei (on the basis of an atomistic conception that is animistic and vitalistic in Bruno, mechanical and quantitative in Galilei) give the modern answer which—starting with Kepler, for his part following W. Gilbert, the great scholar of magnetism—assimilates such forces as at-a-distance forces analogous to the magnetic ones, afterwards identified with the gravity of bodies itself.⁷⁷ Galilei indicates, in a sober way, some explication of the magnetic kind, concerning the phenomenon, previously discussed,⁷⁸ of the constant orientation of the axis of the earth (now no longer set in a solid sphere) towards the celestial pole. It is a motion which is no longer forced like Copernicus's third motion of the earth. Rather, it is a kind of 'stillness' whose persistence during annual motion can be attributed to terrestrial magnetism, as already shown by Gilbert. Yet, while praising Gilbert for his acumen and experimental shrewdness in his studies on magnetism, Galilei, after stressing the absence of mathematics in him, criticizes any reference to sympathies and antipathies (in the Gilbert style) in order to explain the motions of the earth and planets. Nevertheless, he admits the intervention of a magnetic force, but only to regulate and not to cause those motions. This magnetic force appears empirically evident to Galilei only in short distance or contact experiments, operating between iron pieces and magnets; and it seems even to hint at properties of atomic structure, such as material density and contact, due to the short range of the interaction and the shape and distribution of the voids interposed among atoms in magnetic contact.⁷⁹

Concerning the utmost nature of the motions of planets like the earth, however, it is for Galilei an intrinsic motion of circular inertia, purely mechanical

in nature. Also, heavy bodies, falling because of their heaviness towards the centre of the earth, are, as we know, never exempt from it, as their falling motion always combines with the general spinning motion of the planet. On the other hand, planets themselves probably would have started moving circularly around the sun with a uniform motion after falling like heavy bodies towards the Sun with an accelerated motion, when they reached their orbits with the speed wanted by God. And they would have done so “not [...] because of a necessary demonstration, but to honour a Platonic concept,” says Galilei, who still seems to give credit to it.⁸⁰ In fact, this motion is just the inertial motion itself, without a cause, confined inside inertial orbits, in a cosmos tending to remain finite, though immense for Galilei. For Bruno, too, it is with an intrinsic motion, but of an animistic kind, that the earths tend to rotate around themselves and their suns in order to draw from them the maximum possible of light, heat, and nourishment possible,⁸¹ according to “the soul power.”⁸² The difference is truly extraordinary—a mechanical versus an animistic explanation. Yet, a substantial refusal unites them—at least, one which concerns the nature of the motion of planets. It is the refusal of the magnetic philosophy developed by Kepler and starting with Gilbert. The same refusal causes Bruno and Galilei to identically reject the explanation of tides in terms of moon-sun attraction of the earth, so revealing their respective epistemological limits: Bruno exalts the inner thrust, the intrinsic force of the earth, a great desiring animal that cannot be influenced by extrinsic forces. (Bruno, as is well-known, criticizes the astrological tradition, while adhering to a natural magic operating in accordance with an “inner principle.”⁸³) Galilei substantiates the mechanical interplay in tides with rotational and revolutionary inertial motions of the earth and waters.⁸⁴ Both fail precisely because they do not want to accept the reality of extrinsic influences like magnetism. For Galilei these had to be assimilated to unacceptable occult magic forces acting at a distance; for Bruno, they were forces which would limit the freedom and the intrinsic principle of action attributed to a “magically” animated matter.

Though underlining the difference between the subjectivity and vitalism exalted by Bruno, on one hand, and Galilei’s ideal of pure objectivity, on the other; we still observe a strong, powerful analogy, even if their institutional and social sensitivities are deeply different. Galilei introduces the figure of the “Accademico Linceo”⁸⁵ as one of his projections besides Salviati in the *Dialogue* while Bruno calls himself “Achademico di nulla Achademia, detto il fastidito” in the *Candelaio*.⁸⁶ The analogy concerns the interpretation of the Scriptures regarding natural knowledge. In fact, Bruno literally anticipates the allegoric interpretation of the Scriptures later adopted by Galilei in his letters to Castelli, Dini, and Grand Duchess

Cristina, in order to remove the obstacle to the free development of natural research constituted by their literal interpretation.⁸⁷ If Galilei, quoting Cardinal Baronio, said that the Bible teaches “how to go to heaven, not how the heavens go”;⁸⁸ Bruno had already insisted on the ethical, moral meaning of the apparently factual, naturalistic affirmations present in the Bible as strictly linked to common people’s comprehension ability, since the aim of the Bible and of religious dogma in general was social and moral discipline and not the description of natural truth.⁸⁹ Moreover, here we find again a strong influence of the Aristotelian doctrine on Bruno, in particular in Averroës’s version. There is a natural truth which is followed by few in all their freedom and without links, and a dogmatic faith to which the majority can only limit themselves, as they are not able to know such truth; a faith which aims exclusively at producing moral and social discipline, without looking at all for that natural truth itself.⁹⁰ It is well known that, in Galilei’s case, the question was explicitly dealt with, and such a distinction between faith and natural truth was then refuted,⁹¹ while only much more recently his proposal of biblical exegesis in allegoric terms has been accepted by the Church.⁹² In Bruno’s case, however, it was not even taken into account, for the autonomy of natural science was not at all considered during his process. As is well known, what was taken into account was only the fundamental dogmatic corpus of that faith itself.⁹³

BIBLIOGRAPHY

Primary sources

- Brahe, T. *Opera Omnia*. Ed. J. Dreyer. Copenhagen: Libraria Gyldendaliana, 1913–29.
- Bruno, G. *Dialoghi filosofici italiani*. Ed. M. Ciliberto. Milan: Mondadori, 2000.
- . *Opere italiane. Ristampa anastatica delle cinquecentine*. Ed. E. Canone. Florence: Leo Olschki Editore, 1999.
- . *Opere latine*. Ed. C. Monti. Turin: Utet, 1980.
- . *The Ash Wednesday Supper*. Trans. S. Jaki. Paris, The Hague: Mouton, 1975.
- Copernicus, N. *Opere*. Ed. F. Barone. Turin: Utet, 1979.
- Galilei, G. *Dialogo sopra i due massimi sistemi*. Eds. O. Besomi and M. Helbing. Padova: Antenore, 1998.
- . *Lettere*. Ed. F. Flora. Turin: Einaudi, 1978.
- . *Le Opere*. 20 vols. Florence: Barbera, 1968.

Secondary sources

- Aquilecchia, G. “I Massimi sistemi di Galileo e la Cena di Bruno.” *Nuncius* 10 (1995): 485–96.
- Clagett, M. *The Science of Mechanics in the Middle Ages*. Madison: Wisconsin University Press, 1959. (Italian edition: *La scienza della meccanica nel Medioevo*. Milan: Feltrinelli, 1972.)

- Duhem, P. *Le Système du Monde*. 10 vols. Paris: Librairie scientifique A. Hermann et fils, 1913–59.
- Finocchiaro, M. *The Galileo Affair*. Berkeley, Los Angeles: University of California Press, 1989.
- Firpo, L. *Il processo di Giordano Bruno*. Rome: Salerno, 1993.
- Gatti, H. *Giordano Bruno and Renaissance Science*. Ithaca: Cornell University Press, 1999.
- Guthrie, K. S. (comp. and trans.). *The Pythagorean Sourcebook and Library*. Ed. D. R. Fidler. Grand Rapids: Phanes Press, 1987.
- Koyré, A. *Études galiléennes*. Paris: Hermann, 1966. (Italian edition: *Studi galileiani*. Turin: Einaudi, 1976.)
- . *From the Closed World to the Infinite Universe*. Baltimore: Johns Hopkins University Press, 1957. (Italian edition: *Dal mondo chiuso all'universo infinito*. Milan: Feltrinelli, 1970.)
- Kuhn, T. S. *The Copernican Revolution*. Cambridge: Harvard University Press, 1957. (Italian edition: *La rivoluzione copernicana*. Turin: Einaudi, 1972.)
- Nonnoi, G. *Saggi galileiani*. Cagliari: AM&D, 2000.
- Oresme, N. *Le livre du ciel et du monde*. Madison: Wisconsin University Press, 1968.
- Rossi, A. "Bruno, Copernico e Galilei." *Physis* 38 (2001): 283–303.
- Sturlese, R. "Note sull'averroismo di Giordano Bruno." *Giornale critico della filosofia italiana* 71 (1992): 248–75.
- Védrine, H. *La conception de la nature chez Giordano Bruno*. Paris: Vrin, 1967.
- Yates, F. A. *The French Academies of the Sixteenth Century*. London: Warburg Institute, 1947.

NOTES

- 1 Bruno *Dialoghi filosofici italiani*, 24–25: "SMITHO: Please, let me know, what is your opinion of Copernicus? TEOFILO: He was possessed of a grave, elaborate, careful, and mature mind; a man who was not inferior, except by succession of place and time, to any astronomer who had been before him; a man who in regard to natural judgement was far superior to Ptolemy, Hipparchus, Eudoxus, and all the others who walked in the footsteps of these; a man who had to liberate himself from some false presuppositions of the common and commonly accepted philosophy, or perhaps I should say blindness. But for all that he did not move too much beyond them; being more intent on the study of mathematics than of nature, he was not able to go deep enough and penetrate beyond the point of removing from the way the stumps of inconvenient and vain principles, so as to resolve completely the difficult objections, and to free both himself and others from so many vain investigations, and to set attention firmly on things constant and certain. For all that, who can fully praise the great mind of that German, who with little concern for the foolish multitude, stood solidly against the torrent of the opposite persuasion? And though deprived of effective reasons, he seized those rejected and rusty fragments which he could have from the hands of antiquity, and repolished, matched, and cemented them to such an extent with his more mathematical than physical discourse, that there arose

the argument once ridiculed, rejected, and vilified, but now respected, appreciated, and possessed of greater likelihood than its contrary, and certainly more convenient and useful for theory and for computational purposes. Thus, this German, though he did not have sufficient means to become able not only to thwart, but also to fight, to vanquish, and to suppress sufficiently the falsehood, had nevertheless firmly made his stand to decide it in his soul and to confess it most openly, so that in the end one had of necessity to conclude that this globe moved with respect to the universe; rather than that it should be possible that the universality of so many innumerable bodies, of which many are known to be more magnificent and grand, should acknowledge this [globe of ours] as their center and the base of their gyrations and influences, in an insult to nature and to reason which with most evident motions loudly declare the contrary.” Bruno, *The Ash Wednesday Supper*, 56–58.

- 2 Aquilecchia “I *Massimi sistemi* di Galileo e la *Cena* di Bruno.”
- 3 Galilei, *Opere*, vol. 10, 314–15.
- 4 Ibid., vol. 3, 106.
- 5 Copernicus, *Opere*, esp. 34–56.
- 6 Galilei, *Dialogo sopra i due massimi sistemi*, vol. 1, 40.
- 7 Revealed for the first time by Kepler in *Astronomia nova* in 1609.
- 8 Bruno, *Dialoghi filosofici italiani*, 63–64.
- 9 The text of the epistle with a comment is in Copernicus, *Opere*, 165–67.
- 10 Bruno, *Dialoghi filosofici italiani*, 65–67.
- 11 Gatti, *Giordano Bruno and Renaissance Science*, 56.
- 12 Bruno, *Dialoghi filosofici italiani*, 71–76.
- 13 Gatti, *Giordano Bruno and Renaissance Science*, 67.
- 14 Galilei, *Dialogo*, 365–71.
- 15 If, for example, Galilei says, “La Terra e la Luna scambievolmente si illuminano” (ibid., 105), Bruno affirms, “non più la luna è cielo a noi, che noi alla luna.” Bruno, *Dialoghi filosofici italiani*, 29.
- 16 So, if Bruno recalls that “alla sustanza che è la materia, non meno conviene essere in continua mutazione.” Ibid., 120. Galilei defines “la Terra nobilissima ed ammirabile per le tante e sì diverse alterazioni, che in lei incessantemente si fanno.” Galilei, *Dialogo*, 63.
- 17 Ibid., 287.
- 18 Galilei, *Istoria e dimostrazioni intorno alle macchie solari*, in *Opere*, vol. 5, 71–260.
- 19 Bruno, *Dialoghi filosofici italiani*, 29.
- 20 Galilei, *Dialogo* in *Opere*, 401–4.
- 21 In truth, as noted in Gatti, *Giordano Bruno and Renaissance Science*, 70–71, Galilei attributed the abandon of the belief in solid celestial spheres to Copernicus in a letter to F. Cesi dated June 30, 1612, *Atti della Reale Accademia Nazionale dei Lincei*, vol. 7 (1938–42): 244, but it is only an a posteriori rationalization of his stance.
- 22 Brahe, *De mundi aetherei recentioribus phenomenis*, in *Opera omnia*, vol. 4.
- 23 This is the so-called declination motion of the earth, discussed in Copernicus, *Opere*, 214–19.
- 24 Ibid., 218–19.
- 25 Ibid., 367–453. Deeply discussed in Book III of *De revolutionibus*.

- 26 Copernicus, *Opere*, 368–69. Copernicus even affirms that at times an eleventh sphere had begun to emerge.
- 27 Kuhn, *La rivoluzione copernicana*, 252.
- 28 Bruno, *Dialoghi filosofici italiani*, 125–29.
- 29 Gatti, *Giordano Bruno and Renaissance Science*, 73 and note 51. In particular, Bruno mistakenly attributes a period of 49,000 years to the precession motion, more correctly calculated by Copernicus of about 26,000 years. However Bruno later reduces the mistake, following Albert of Saxonia, to 36,000 years (*Dialoghi filosofici italiani*, 485).
- 30 Kuhn, *La rivoluzione copernicana*, 347.
- 31 Gatti, *Giordano Bruno and Renaissance Science*, 74–75.
- 32 *Ibid.*, 75. On purpose, Gatti correctly speaks of “some tension here in Bruno’s mind which will never be completely resolved” between the search for a mathematical order of the world and just criticism of Copernicus for excessive use of mathematics in the study of nature.
- 33 Bruno, *Dialoghi filosofici italiani*, 104–6.
- 34 Yates, *The French Academies of the Sixteenth Century*, 102–3.
- 35 Védérine, *La conception de la nature chez Giordano Bruno*, 231.
- 36 Bruno, *Dialoghi filosofici italiani*, 161.
- 37 Copernicus, *Opere*, 422–28.
- 38 *Ibid.*, 212–13.
- 39 Bruno, *Dialoghi filosofici italiani*, 106.
- 40 Copernicus, *Opere*, 461–63.
- 41 Gatti, *Giordano Bruno and Renaissance Science*, 69–70. In particular, it underlines Bruno’s ‘thermodynamic’ view taken from B. Telesio.
- 42 Gatti insists upon Bruno’s high esteem for Pythagorean tradition (*Giordano Bruno and Renaissance Science*, especially chapter I).
- 43 Guthrie *Pythagorean Sourcebook*, *ad vocem*.
- 44 Bruno, *Dialoghi filosofici italiani*, 65.
- 45 Bruno, *Opere latine*, 576–77.
- 46 *Ibid.*, 433–34.
- 47 See note 31.
- 48 See note 20.
- 49 Clagett, *La scienza della meccanica nel Medioevo*, 665–66. This source particularly underlines Bruno’s dependence on Buridan and Oresme.
- 50 Duhem, *Le Système du Monde*, *passim*.
- 51 Oresme, *Le livre du ciel et du monde*, 518–38.
- 52 Kuhn, *La rivoluzione copernicana*, 155. It nevertheless underlines that Oresme at least overcomes the distinction between celestial and terrestrial motions, attributing circular natural motions to the earth and to the heavens.
- 53 Koyré, *Dal mondo chiuso all’universo infinito*, 14–26.
- 54 Copernicus, *Opere*, 200–3.
- 55 *Ibid.*, 203–4.
- 56 Galilei, *Dialogo*, 287.
- 57 *Ibid.*, 358.

- 58 Bruno, *Dialoghi filosofici italiani*, 25.
- 59 Koyré, *Galileo et sa loi d'inertie* in *Studi galileiani*, 172–83.
- 60 Bruno, *Dialoghi filosofici italiani*, 87–89.
- 61 Galilei, *Dialogo*, 201–3.
- 62 Bruno, *Dialoghi filosofici italiani*, 87.
- 63 Galilei, *Dialogo*, 202.
- 64 Koyré, *Studi galileiani*, 177–78.
- 65 Koyré, *Dal mondo chiuso all'universo infinito*, 38–48.
- 66 Cf. note 20.
- 67 Galilei, *Opere*, vol. 6, 350–52.
- 68 Ibid., vol. 8, 85–86.
- 69 Nonnoi, *L'atomismo ambiguo di Galileo*, in *Saggi galileiani*, 17–62.
- 70 Bruno, *Opere latine*, 152.
- 71 Galilei, *Lettera a Monsignor Pietro Dini*, in *Lettere*, 115–123, and Galilei *Il saggia-
re* (*The assayer*), in *Opere*, vol. 6, 350–52.
- 72 Bruno, *Opere latine*, 127–32.
- 73 Nonnoi, *L'atomismo ambiguo di Galileo*, 38–62.
- 74 Kuhn, *La rivoluzione copernicana*, 301–2.
- 75 Bruno, *Opere latine*, 132–413.
- 76 Galilei, *Opere*, vol. 8, 85–86.
- 77 Kuhn, *La rivoluzione copernicana*, 293–338.
- 78 See note 23.
- 79 Galilei, *Opere*, vol. 8, 435–52.
- 80 Galilei, *Dialogo*, 30–31.
- 81 Bruno, *Dialoghi filosofici italiani*, 99–100.
- 82 Bruno, *Opere latine*, 433–35.
- 83 Bruno, *Dialoghi filosofici italiani*, 112–13.
- 84 Galilei, *Dialogo*, 453–504.
- 85 Ibid., 20–21. Here is the first introduction of the figure that will reappear many times afterwards throughout the *Dialogue*.
- 86 Bruno, *Opere italiane*, vol. 1, 1.
- 87 Galilei, *Lettere*, 102–61.
- 88 Galilei, *Lettera a Madama Cristina*, *ibid.*, 123–61.
- 89 Bruno, *Dialoghi filosofici italiani*, 91–94.
- 90 Sturlese, “Note sull’averroismo di Giordano Bruno.”
- 91 Finocchiaro, *The Galileo Affair*.
- 92 The full overcoming of literalism was, in fact, affirmed only in 1965 by the Vatican II Council with the Apostolic Constitution *Gaudium et Spes*.
- 93 Firpo, *Il processo di Giordano Bruno*.

PART 3

Forms of Non-Conformity: Bruno's Works as Literary Texts

NUCCIO ORDINE

The Comic and Philosophy: Plato's *Philebus*
and Bruno's *Candle-bearer**

Son tre materie principali intessute insieme ne la presente comedia: l'amor di Bonifacio, l'alchimia di Bartolomeo e la pedantaria di Mamfurio. Però per la cognizion distinta de soggetti, ragion dell'ordine et evidenza dell'artificiosa testura, rapportiamo prima da per lui l'insipido amante, secondo il sordido avaro, terzo il goffo pedante: de quali l'insipido non è senza goffaria e sordidezza; il sordido è parimente insipido e goffo; et il goffo non è men sordido et insipido che goffo.

Candelaio, ARGUMENT.¹

In Paris, Bruno launched the Italian phase of his literary career with a comedy. He wanted an explicitly comic register to govern the world's first taste of his philosophy. It is an overture in every sense, which anticipates several key aspects of his thought and at the same time outlines the general principles of his poetics. The hermeneutics of Silenus, which characterize the entire corpus of dialogues, already formulated in *Candle-bearer*. In order to see how the mechanism controls the functioning of the model, we must start with the comic.

First of all, it is necessary to deal with the enigmatic tripartite structure of the comedy. Why weave three stories into one piece of theater? Was this a casual decision or a well-thought-out design? Leaving aside numerical hypotheses and Trinitarian esotericism, we may suppose that Bruno simply wished to put on stage three stock characters from Cinquecento theater: the lover, the alchemist, and the pedant. Yet, why just those three types when there were so many from which to choose? Again, to return to our initial question: why three and not four or five... or two?

The answer is likely to be found in an analysis of the theory of the comic. The treatise-literature on the mechanisms that elicit laughter is not confined to the handful of lines dedicated to comedy in Aristotle's *Poetics*, although the Stagirite's position was still dominant in the Cinquecento debate and we will look at it more closely below. Mention should also be

made of the widespread presence (implicit or explicit) of Plato's *Philebus*, which was first published in Latin by Marsilio Ficino in 1484.² For example, Francesco Bonciani's *Lezione sopra il comporre delle novelle* (1574) makes use of Aristotle's precepts, however, it also resorts to the Platonic dialogue in order to offer a scheme of the mechanisms that provoke laughter.³ The same path had been followed, more or less, by Maggi, Trissino, and Castelvetro in their commentaries on the *Poetics*.⁴

The passages analyzing the comic in *Philebus* offer a sequence of reflections characterized by the overlap of philosophy and literature. Throughout the course of the dialogue, Socrates analyzes the concept of "the good," probing the predominant definitions of it as pleasure, joy, and enjoyment. To give an example of the co-presence of pleasure and pain in the soul, he dwells on the nature of theatrical performance: "And if you take the state of our minds when we see a comedy, do you realize that here again we have a mixture of pain and pleasure?"⁵ Plato's interest in the mingling of opposing affects—for example, how laughter and sorrow can be integrated "in the whole tragicomedy of life"⁶—spurs him to explore the sources of the ridiculous in a brief but charged digression (Plato, *Philebus*, 47d–50e) in which, for the first time, he provides an explanation simultaneously.⁷

To persuade his interlocutor, Socrates fixes the origin of the ridiculous in a celebrated image: in order to grasp what is going on (both on the theatrical stage and on the stage of life) one must imagine "the opposite of the inscription at Delphi."⁸ The element that provokes laughter is "non-knowledge of oneself," a vice of the soul that generates a false opinion of one's own worth. This sort of dangerous ignorance is displayed in three distinct situations:

- A/ The first situation concerns riches, the goods of fortune: One believes oneself richer than one actually is (in respect to wealth, he may think himself richer than his property makes him).⁹
- B/ The second involves bodily attributes: One thinks oneself more handsome or strong than one actually is. ("But there are even more who think themselves taller and more handsome and physically finer in general than they really and truly are.")¹⁰
- C/ The third relates to the quality of the soul: One thinks oneself more virtuous than one actually is. ("But by far the greatest number are mistaken as regards the third class of things, namely possessions of the soul. They think themselves superior in virtue when they are not.")¹¹

The ridiculous, according to Socrates, arises from the gap created between what we think we are and what we really are. He, who exhibits a presumption of superiority that flies in the face of the facts (the objective reality presented on stage), draws laughter. To falsely boast of wealth, physical qualities, or virtues is, of course, risible. Yet, the three situations in the Socratic model are all reducible to a single paradigm: non-knowledge of oneself—the ostentation of alleged wisdom that finally turns out to be miserable ignorance.

Socrates' discourse, of course, touches on other important questions (the relations of force created between the victim and the audience, specifically, how the decisive function of "envy" is used within a comic production in eliciting a mixture of pleasure and pain in the audience), which we will not go into detail about here. For our purposes, the essential point at hand is the interpretive model of the mechanisms that unleash laughter. For the fact is that, as a detailed analysis of *Candle-bearer* reveals, the three protagonists are perfect examples of the scheme set forth in *Philebus*:

- A/ Bartolomeo deceives himself about wealth and his material goods: he thinks he is potentially rich because, after much effort, he believes he has found the formula for making gold. In fact, in the eyes of the spectators (and the characters that have robbed him), he winds up exhibiting his real poverty because of the great sums of money he has invested in alchemy in vain.¹²
- B/ Bonifacio deceives himself about bodily goods: not only does he believe that his physical endowments will conquer Vittoria ("So what can we make of Bonifacio who, as though there were no other men on earth, thinks he should be loved for his beautiful eyes?")¹³ Somehow, he doesn't realize that, as Gioan Bernardo suggests, he is a "candle-bearer"¹⁴ and not an "auriferer."¹⁵
- C/ Mamfurio deceives himself about the goods of the soul: he thinks of himself as a virtuous pedagogue, but shows himself to be a sterile pedant.¹⁶

In the Argument and ordering of the play (Bruno, *Candle-bearer*, 60), it is stated clearly that the "three principal matters" are "woven together" and that the three characters differ only to ensure "a distinct understanding of these subjects" as well as "a reasoned explanation of their ordering and evidence of the artifice of this text":

There are three principal matters woven together in the present comedy: the love of Bonifacio, the alchemy of Bartolomeo, and the pedantry of Manfurio. However, for a distinct understanding of these subjects, a reasoned explanation of their ordering and evidence of the artifice of this text, we shall present first, of himself, the insipid lover, second the sordid miser, third the pompous pedant; of which the insipid one lacks neither sordidness nor pomposity, the sordid one is equally insipid and pompous, and the pompous one is no less insipid and sordid than he is pompous.¹⁷

Here Bruno makes his point clearly: the attribution of the same negative qualities to Bonifacio, Bartolomeo, and Manfurio brings the initial tripartition back to unity. The “insipid lover,” the “sordid miser,” and the “pompous pedant,” all spring from a single basic attitude capable of generating an array of instances. In this case, too, the trait that binds the three characters is precisely non-knowledge of themselves. The ridiculousness arises from their presumptions of wisdom, from the obvious gap created onstage between what the character thinks he is and what he actually is. Hence, the tripartite scheme may be seen as a symbolic translation of one of Bruno’s kernels of thought: the dialectic of appearance and reality.

Candle-bearer constitutes a staging of ignorance, an exemplification of the errors and follies welling up from false knowledge, the portrayal of a series of empty pseudo-cognitive exercises:

Here then before your eyes are futile beginnings, feeble plots, vain thoughts, frivolous hopes, bursting breasts, heartstrings laid bare, false assumptions, alienated wits, poetic furors, clouded senses, distortions of fantasy, lost intellectual pilgrimages, unbridled faiths, absurd anxieties, dubious studies, untimely sowings, and the glorious fruits of madness [...]. And you will see, in great confusion, schemes of thieves, stratagems of swindlers, undertakings of scoundrels and, moreover, sweet aversions, bitter pleasures, mad resolves, fallen faiths, limp hopes and little charity; great and shrewd judgment regarding the affairs of others and lack of insights regarding one’s own; virile women, effeminate men; words that are mouthed but not the least bit meant; the truest believer also the most deceived; and universally the love of money. All of which produces quartan fevers, spiritual cankers, weightless thoughts, silliness beyond measure, laureate lunacies, magisterial blunders, and slips of the tongue to twist your neck into knots; and more: desire that drags, knowledge that

nudges, action that reaps, and diligence, the mother of all success. In conclusion, you will see nothing that's certain, but lots of action, plenty of defects, little that's pretty, and nothing of any worth.¹⁸

Employing this gap between what we think we are and what we really are, between what seems and what is, the comedy shows us how appearances ("the truest believer also the most deceived") may deceive us on various levels. By tracing the dense web of illusion woven into the comedy, we can pinpoint some important aspects of Bruno's philosophical thought.

BIBLIOGRAPHY

Primary sources

- Alanus ab Insulis. "Liber de Planctu Naturae." In *The Anglo-Latin Satirical Poets and Epigrammatists of the Twelfth Century*. Ed. T. Wright. London: various publishers, 1872. Reprint Wiesbaden: Kraus Reprint Ltd, Lessingdruckerei, 1964.
- Aretino, P. *Teatro*. Ed. G. Petrocchi. Milan: Mondadori, 1971.
- Bruno, G. *The Heroic Frenzies*. Ed. and trans. P. E. Memmo, Jr. Chapel Hill: University of North Carolina Press, 1964.
- . *Candle-bearer*. Ed. and trans. G. Moliterno. Ottawa: Dovehouse Editions, 2000.
- . *Chandelier – Candelaio. Œuvres complètes*, vol. 1. Ed. G. Aquilecchia. Trans. Y. Hersant. First edition, 1993. Second revised and corrected edition, Paris: Les Belles Lettres, 2003.
- Bruscagli, R., ed. *Trionfi e Canti Carnascialeschi*. Rome: Salerno, 1986.
- Plato. "Philebus." In *The Collected Dialogues of Plato. Including the Letters*. Eds. E. Hamilton and H. Cairns. Trans. R. Hackforth. Princeton: Princeton University Press, 1963.
- Rabelais, *Les cinq livres*. Eds. J. Céard, G. Defaux and M. Simonin. Paris: Le Livre de Poche, 1994.
- Weinberg, B., ed. *Trattati di poetica e retorica del Cinquecento*. Bari: Laterza, 1972.

Secondary sources

- Berti, E. "Osservazioni filologiche alla versione del *Filebo* di Marsilio Ficino." In *Il Filebo di Platone e la sua fortuna*. Ed. P. Cosenza, 93–167. Naples: M. D'Auria Editore, 1996.
- Bonciani, F. "Lezione sopra il comporre delle novella." In *Teoria della novella e teoria del riso nel Cinquecento*. Ed. N. Ordine, 121–24. Naples: Liguori, 1996.
- Cerasuolo, S. *La teoria del comico nel Filebo di Platone*. Naples: Turrus Eburnea, 1980.
- Curtius, E. R. "God as Maker." In *European Literature and the Latin Middle Ages*, trans. W. Tras, 544–46. Princeton: Princeton University Press, 1953.
- Ferroni, G. "Frammenti di un discorso sul comico." In *Ambiguità del comico*. Ed. G. Ferroni, 19–23. Palermo: Sellerio, 1983.
- Garzoni, T. "Degli orefici." In *La piazza universale di tutte le professioni del mondo*, vol. 1. Eds. P. Cherchi and B. Collina, 777. Turin: Einaudi, 1996.

- The Jerusalem Bible*. Reader's Edition. Garden City, NY: Doubleday, 1971.
- Mader, M. *Das Problem des Lachens und der Komödie bei Platon*. Stuttgart: W. Kohlhammer, 1977.
- Ordine, N. *Teoria della novella e teoria del riso nel Cinquecento*. Naples: Liguori, 1996.
- Tetel, M. *Rabelais et l'Italie*. Florence: Olschki, 1969.
- Wersinger, A. G. "Comment 'dire' l'envie jalouse?" In *La fêlure du plaisir. Études sur le Philebe de Platon*. Ed. M. Dixsaut, vol. 1, 319–28. Paris: Vrin, 1999.

NOTES

- * This essay is a slightly revised version of a chapter of my book *La soglia dell'ombra. Letteratura, filosofia e pittura in Giordano Bruno*, Venice 2003.
- 1 Bruno, *Candelaio / Chandelier*, 17. "There are three principal matters woven together in the present comedy: the love of Bonifacio, the alchemy of Bartolomeo, and the pedantry of Manfurio. However, for a distinct understanding of these subjects, a reasoned explanation of their ordering and evidence of the artifice of this text, we shall present first, of himself the insipid lover, second the sordid miser, third the pompous pedant; of which the insipid one lacks neither sordidness nor pomposity, the sordid one is equally insipid and pompous, and the pompous one is no less insipid and sordid than he is pompous." Bruno, *Candle-bearer*, 60.
 - 2 Berti, "Osservazioni filologiche," 93–167. Detailed analysis of Ficino's translation of *Philebus* I.
 - 3 Bonciani, *Lezione sopra il comporre delle novelle* in Ordine, *Teoria della novella*, 121–24. On Bonciani's Aristotelism, see Weinberg, *Trattati di poetica e retorica*, vol. 3, 493–94.
 - 4 Ordine, *Teoria della novella*, 76–82. On the presence of *Philebus* in sixteenth-century commentaries of Aristotle's *Poetics*.
 - 5 Plato, *Philebus*, 48a.
 - 6 *Ibid.*, 50b.
 - 7 For an analysis of these passages from *Philebus*, see at least Mader, *Das Problem des Lachens*, 13–28; Cerasuolo, *La teoria del comico*; Ferroni, "Frammenti di un discorso sul comico," 19–23; Ordine *Teoria della novella*, 3–7; Wersinger "Comment 'dire' l'envie jalouse?"
 - 8 Plato, *Philebus*, 48c–d.
 - 9 *Ibid.*, 48e.
 - 10 *Ibid.*
 - 11 *Ibid.*
 - 12 This is how Bartolomeo, convinced that he will be able to cover the beams of his house with gold, is described by his wife: "Coals are his gems and precious stones, retorts are his angels, tied together from one burner to the next with glass noses this way and iron alambics that way, some big, some little, and some in-between. And how he jumps, and he dances and he sings, that poor wretch, that he reminds me of that proverb about the ass. A short while ago in order to see what he was up to, I put my eye to a crack in the door and I saw him seated upon a chair like a university pro-

fessor with one leg stretched out here and another there, admiring the beams of the ceiling and, after nodding his head three times he said to them 'You, you I shall festoon with stars made of the purest gold.'" Bruno, *Candle-bearer*, 90; Bruno, *Candelaio / Chandelier*, 109.

- 13 Bruno, *Candle-bearer*, 125; Bruno, *Candelaio / Chandelier*, 219. Bonifacio reminds Marta that elderly men need younger women: "To conclude, my dear lady, an old tomcat needs a tender young mouse." Bruno, *Candle-bearer*, 133; Bruno, *Candelaio / Chandelier*, 245. Moreover, in a passage from *The Heroic Frenzies*, Bruno refers to the elderly man who falls in love, alluding to one of the commonest theatrical topoi: "But derision and laughter belong to those who at a mature age would, as it were, begin to learn their alphabet." Bruno, *The Heroic Frenzies*, 92; Bruno, *Candelaio / Chandelier*, 87.
- 14 "From a candle-bearer you're becoming an auriferer." Bruno, *Candle-bearer*, 83; Bruno, *Candelaio / Chandelier*, 89. The allusion to Bonifacio's homosexuality emerges more explicitly in the conversation between Madonna Angela Spigna and Carubina: "So to her went Madonna Carubina and said: 'Mother, they want to give me a husband. They have introduced me to Bonifacio Trucco who has ways and means.' The old woman replied: 'Take him.' 'Yes, but he's already quite old,' said Carubina. The old woman replied: 'Daughter, don't take him.' ... 'I'm informed,' said Carubina, 'that he has a fine mount.' 'Take him,' replied old Madonna Angela. 'But alas,' she said, 'I've also heard that he's a candelbearer.' 'Don't take him,' she replied" (Bruno, *Candle-bearer*, 187; Bruno, *Candelaio / Chandelier*, 407). This exhilarating passage is strongly reminiscent of the reasoning for and against marriage in Aretino's *Marescalco* (Pietro Aretino, *Teatro*, 15–18 and 82–83), which probably also inspired the famous dialogue between Panurge and Pantagruel on the advisability of taking a wife: Rabelais, *Le tiers livre*, chap. 9, in Rabelais, *Les cinq livres*, 601–605. The three texts are compared in Tetel, *Rabelais et l'Italie*, 32–59.
- 15 Bonifacio admits he doesn't understand Gioan Bernardo's quip: "what the devil does he mean by 'auriferer'?" Bruno, *Candle-bearer*, 83; Bruno, *Candelaio / Chandelier*, 89. In the colorful metaphorical language of Renaissance burlesque poetry, the term "gold" refers to sexual intercourse "according to nature" (i.e., vaginal), as opposed to "silver", which, being "less valuable", refers to sodomy. (Cf. Bernardo Giambullari's "Canzona dell'argento" and Lasca's "Giovani fiorentini tornati dall'isole del Perù" in Bruscagli, *Trionfi e Canti Carnascialeschi*, vol. 1, 260–61 and vol. 2, 388.) But the term "auriferer" in opposition to "candle-bearer" might also imply the contrast between the "active" function of the artisan and the "passive" one of the object, with reference to the learned medieval debate on *deus artifex*. In the commentaries on Plato's *Timaeus*, God is denoted the artificer, demiurge, potter, builder, architect and constructor of the cosmos. Among the various artisanal metaphors in the *Liber de Planctu Naturae* by Alain de Lille, that of *faber aurarius* also occurs: "Cum Deus ab ideali internae praeconceptionis thalamo mundialis palatii fabricam foras voluit enotare, et mentale verbum quod ab aeterno de mundi constitutione conceperat reali eiusdem existentia velut materiali verbo depingere, tanquam mundi elegans architectus, tanquam aureae fabricae faber aurarius velut stupendi artificii artificiosus artifex, tanquam admirandi operis operarius opifex ... mundialis regiae admirabilem speciem fabricavit." Alanus ab Insulis, *Liber de*

Planctu Naturae, 468–69 (my italics). In the *Song of Songs* too there is a reference to the goldsmith's work which refers allegorically to *Deus artifex* who shapes bodies: "How beautiful are your feet in their sandals, O prince's daughter! The curve of your thighs is like the curve of a necklace, work of a master hand" (*The Song of Songs* in *The Jerusalem Bible*, 7–2). These texts, along with other commentaries, are analyzed in Curtius, "God as Maker," 544–46. These citations confirm the fact that, apart from the obscene reference to the modalities of intercourse, Bruno might also be alluding to the "active" role of the goldsmith, with his ability to shape his raw material, and the doubly "passive" role of the object (the candle-bearer): passive because of its function (because it is made to receive the candle), but also passive because it is itself the result of creation by an artificer. Producing candleholders was one of the tasks of goldsmiths: "Who makes chalices, crosses, patens, and candleholders [...] if not them?" (Garzoni, "Degli orefici," 777.)

- 16 This is how Mamfurio is described in the "Prologue": "You will also see the haughtiness and majesty of a man (using the term loosely): one who gives such kisses as would turn the stomach of a hen or pig, one who would reinstate the ancient Latin tongue, an emulator of Demosthenes, one who resuscitates Tullius for you from the murkiest depths, singer of the deeds of the great heroes of old. Here present before you is an acumen that will make your eyes water, your hair curl, set your teeth on edge, make you fart, stand, cough and sneeze [...]. You will see one who masticates dogmas, reeks opinions, spits out aphorisms, pisses authorities, belches arcane learning, sweats banal and bizarre lines, sows the ambrosia and nectar of judgements which need to be tasted by a Ganymede before being raised as a toast to a fulgurating Jove. You will see a synonymic, epithetic, appository and suppository *pubercola*, janitor to Minerva, majordomo to Pallas, trumpet of Mercury, patriarch of the Muses and heir to Apollo's throne; there I was about to say drone." Bruno, *Candle-bearer*, 70–71; Bruno, *Candelaio / Chandelier*, 49–51. This passage anticipates a series of topoi which Bruno goes on to take up in other passages against pedants in the Italian dialogues.

- 17 Bruno, *Candle-bearer*, 60; Bruno, *Candelaio / Chandelier*, 17.

- 18 Bruno, *Candle-bearer*, 68–73; Bruno, *Candelaio / Chandelier*, 43–53.

SERGIUS KODERA

The (In)discreet Presence of Machiavelli in
Giordano Bruno's *Candelaio*

SANGUINO: Or lasciamo queste parole da vento: vengamo al fatto nostro—Era un tempo che il leone e l'asino erano compagni; et andando insieme in peregrinaggio convennero che al passar de fiumi si tranassero a vicenna: com'è dire, che una volta l'asino portasse sopra il leone, et un'altra volta il leone portasse l'asino. Avendono dunque ad andar a Roma, e non essendo a lor serviggio né scafa né ponte, gionti al fiume Garigliano, l'asino si tolse il leone sopra: il quale natando verso l'altra riva, il leon, per tema di cascare, sempre più e più gli piantava l'unghie ne la pelle di sorte che a quel povero animale gli penetrorno in sin all'ossa. Et il miserello (come quel che fa professione di pazienza) passò al meglio che poté senza far motto. Se non che gionti a salvamento fuor de l'acqua, si scrollò un poco il dorso, e si sveltò la schena tre o quattro volte per l'arena calda: e passoron oltre. Otto giorni dopo, al ritornare che fecero, era il dovero che il leone portasse l'asino. Il quale essendogli sopra, per non cascar ne l'acqua, co i denti afferrò la cervice del leone: e ciò non bastando per tenerlo su, gli cacciò il suo strumento (o come vogliam dire, il tu m'intendi), per parlar onestamente, al vacuo sotto la coda, dove manca la pelle: di maniera ch'il leone sentì maggior angoscia che sentir possa donna che sia nelle pene del parto, gridando «Olà, olà, oi, oi, oi, oimè! olà traditore!». A cui rispose l'asino in volto severo e grave tuono: «Pazienza, fratel mio: vedi ch'io non ho altr'unghia che questa d'attaccarmi». E cossì fu necessario ch'il leone soffrisse et indurasse sin che fusse passato il fiume. A proposito, «*Omnia rero vecissitudo este*»: e nisciuno è tanto grosso asino, che qualche volta venendogli a proposito, non si serva de l'occasione. Alcuni giorni fa messer Bonifacio rimase contristato di certo tratto ch'io gli feci; oggi, all'ora ch'io credevo che si fusse dimenticato, me l'ha fatta peggio che non la fece l'asino al leone: ma io non voglio che la cosa rimagna cqua.

Candelaio, Act II, SCENE 5.¹

Giordano Bruno's first Italian book purports *not* to be an erudite treatise on the intricacies of the philosophy of the infinite universe or of the primacy of matter over form; it seems to be just a facetious stage play. The *Candelaio*, the 'candle-bearer' (a derogatory word for a passive homosexual man), was published in 1582 in Paris, where Bruno had arrived the year before after his travels through various places in Europe.² Though reminiscent of other Renaissance comedies,³ the hilarious surface of the *Candelaio* conceals philosophical, political, and theological topics. With good reason, Nuccio Ordine has recently described the *Candelaio* as an 'overture' to the Nolan's philosophical *Dialoghi italiani* in general.⁴ Indeed, the play contains a wealth of comment on Bruno's intricate art of memory represented in the Nolan's Latin treatises.⁵ Bruno adapts here not only traditional personae from the sixteenth-century Italian stage (such as the *capitano*, the *ruffiana*, or the *pedante*), but he also introduces a hitherto unknown figure, the painter Gioanbernardo, whose name is an acronym for Giordano Bruno.⁶ Drawing its main intellectual energy from being a (tragi-)comedy,⁷ Bruno is playing a game of hide-and-seek with his spectators and readers, thus creating a wealth of intertextual references in a work that is full of dramatic irony.

It is beyond the scope of this article to describe the complex plot of the *Candelaio* in its entirety. For the moment, let it suffice to emphasize that our opening quote comes at a strategic point in the comedy. Here, Sanguino, a character who embodies the topical figure of the sly and witty *grazioso*, communicates the details of the ruse he is planning against Bonifacio. This formerly gay man suddenly became straight at the age of 42 and married a beautiful young woman, only to quickly tire of her and fall madly in love with *Signora* Vittoria (I, 3). In order to avoid paying for the courtesan's services, the fool hires a charlatan who promises to cast a powerful love spell on the object of Bonifacio's desire. The fool's avarice and nasty stupidity will prove fatal; for, as we know from our opening quote, Sanguino has been offended by Bonifacio. Together with Lucia (Vittoria's pander) the *grazioso* plans an intricate ruse. In the opening quote, Sanguino is explaining his intentions to *Signora* Vittoria. In the course of the play, Bonifacio will be caught *in flagranti* by his faithful wife, the dazzling Madonna Carubina, who (disguised as the desired *Signora*) receives her would-be adulterer husband in a dark room in the prostitute's house. Here, Carubina maltreats her Bonifacio (IV, 12).⁸ Immediately afterwards, Gioanbernardo manages to seduce the still-enraged Carubina: a difficult task, since—in contrast to her husband—she is a chaste and honourable wife. Her seduction thus turns out to be the main goal of the play's many ruses.

Equipped with this sketchy outline of the main plot in the *Candelaio*, we may now return to our topic and the opening quote. There is seemingly no connection between the suggestive fable of the Lion and the Ass and the intellectual cosmos of Niccolò Machiavelli. Indeed, Bruno never even mentions the name of the notorious philosopher-politician from Florence.⁹ Yet, contrary to this first evidence, one detects what I would like to call Machiavelli's discreet presence in strategically important passages of the *Candelaio*, even though this presence seems at first glance to be in stark contrast with the obscenity of the story in our opening quote. One of the most noticeable references to the political thought of Machiavelli comes during an often quoted speech in the *Candelaio*'s fifth act. Here Gioanbernardo, the painter-philosopher explains how he managed to seduce Madonna Carubina:

Quantumque questo bene ch'ho posseduto questa sera, non mi sii stato concesso da dèi e la natura; benché mi sii stato negato dalla fortuna: il giudizio mi ha mostrata l'occasione; la diligenza me l'ha fatta apprendere pe' capelli; e la perseveranza ritenirla. (Bruno, *Œuvres complètes*, vol. 1, 377)¹⁰

This passage echoes a famous passage of *Il Principe*. Here, Machiavelli portrays fortune as a woman who actually likes being ravaged by recklessly violent young men.¹¹ Yet, Bruno also significantly departs from the Machiavellian image of the ruthless young man who by sheer physical force overcomes Dame Fortune. In the above quote, Gioanbernardo explains how he expects us to do business. The most important thing is to have a well thought out master-plan and to make sure that all the actors keep minutely to the script. It is important to note the image which Bruno uses in order to convey this abstract idea: "In all matters, the real difficulty is in getting the head through, because then easily the chest and the body follow" (Bruno, *Candle-bearer*, 177sq.)—"In tutti negozi la difficoltà consiste che passi la testa: perché a quella facilmente il busto et il corpo tutto succede" (*Candelaio*, V, 19; Bruno, *Œuvres complètes*, vol. 1, 377).

Just as Machiavelli creates an influential metaphorical representation of fortune as a woman, so Bruno elaborates here another embodied representation that cautions us not to lose our heads while attempting to achieve our goals. This is a good example of how Bruno frequently transforms and thereby subverts the concepts of other thinkers.

The above quote is immediately followed by another instructive example of Bruno's intertextual reference, in which Gioanbernardo describes the

effects of his behaviour by saying, “In the future I’m certain that between Madonna Carubina and myself there will be less need of schemes, introductions, discussions, and reasoned argument” (Bruno, *Candle-bearer*, 177sq.)—“Per l’avenire tra me e Madonna Carubina son certo che non bisognaranno tanti studi, proemii, discorsi, raggioni et argomenti” (Bruno, *Candelaio*, V, 19, Bruno, *Œuvres Complètes*, vol. 1, 377). Gioanbernardo implies that after having successfully conquered the married woman, he will have no difficulties in maintaining a stable, albeit illicit relationship with the object of his desire. Machiavelli, too, develops these ideas not only in his political treatises, but also on stage. The protagonist of his comedy *Mandragola* describes the outcome of a ruse in the course of a love affair in very similar words to those spoken by Gioanbernardo in the *Candelaio*.¹² Machiavelli conveys the same message in his political treatises when he says that a prince (or, indeed, any other person) who acquires a dominion with great effort and *virtù* will subsequently be able to hold this position without difficulties.¹³ The metaphorical representation of politics as a transgressive sexual act (and vice versa) is not a literary idiosyncrasy of both authors; it is a general characteristic of Renaissance discourses. Just as the victor ‘rapes’ his inferior military opponents, so is the image of a woman taken by (more or less) force metonymic for a conquered city. The drama of establishing a sexual relationship and the vicissitudes of violent politics are thus expressed in identical words. It becomes obvious to which extent Renaissance politics was conceptualized and represented as a discourse of seduction and sexual transgression.¹⁴

After these preliminary remarks, which have sought to review some well known facts about conceptual similarities between Machiavelli and Bruno, we are now in a position to turn to our opening quote. With regard to this case, contemporary scholarship has, to the best of my knowledge, not yet explored in depth the connexions between Machiavelli and Bruno. To start with the obvious, the story of the ass who rapes the lion may serve as an instructive example of the ways in which Renaissance discourses on sexuality and politics become intertwined. Viviani says that this fable can be traced back to ancient times and that it is even depicted in a mosaic from Pompei—but, unfortunately, this author fails to give any evidence to support his claim.¹⁵ Be that as it may, we will see that Bruno uses the narrative for a very distinct end. In the *Candelaio*, Sanguino tells this edifying story to Signora Vittoria, a prostitute, and we may presume that he sleeps with the woman immediately afterwards. The *grazioso* has a central role in the play which, however, is often overlooked: for it is Sanguino who con-

structs the ruse, in the course of which Gioanbernardo will sleep with Madonna Carubina. Furthermore—and as a positive side-effect, so to speak—several nit-wits, such as Bonifacio, will be punished for their arrogance in different ways.

It is precisely here that we may detect a political context that forms an *arrière-plan* for Bruno's comedy, because the fable of the lion and the ass can be read as an (implicit) commentary on important historical political affairs. Let us briefly recount the contents of the dirty story, in order to find out which event Bruno had in mind. Sanguino tells us about the ass and the lion, who are on their way to Rome. In order to get there, they have to cross the river Garigliano. Because they found neither "boat nor bridge," the animals have to wade through the river. On the way to Rome, the ass took the lion on his back; and on the way back, he was carried by the ass. In order to hold on to each other, the two animals used different parts of their bodies. While the (noble) lion mercilessly digs his claws into the ass's back, this animal is only capable of using the one suitable extremity nature has provided it with. The ass sticks its (proverbially large) sexual organ into the anus of the lion, thus raping (or conquering) the Animal King.¹⁶ Moreover and even more pertinent to our topic, Sanguino recounts the story with the explicit intention of conveying the idea that this affair has *merely* developed in favour of the stupid and lewd ass, because the animal took advantage of the right occasion, and was thus able to defeat the noble lion. He says, "To wit, '*Omnio rero vecissitudo este*,' and no one is so much of an ass that they would refuse to seize the opportunity if chance should provide it" (II, 5; Bruno, *Candle-bearer*, 100).

Both notions, vicissitude and opportunity (*occasione*), are dependent on each other, and central concepts of Bruno's philosophy in general.¹⁷ It is important to keep in mind that Sanguino recounts this story in the context of a tale of revenge: the narrator here assumes the role of the lion who wants to avenge the insult suffered from his opponent Bonifacio (the ass). If we moreover take into account that Sanguino is decidedly lower class—whereas Bonifacio, as a nobleman, belongs to the socially powerful—then it becomes clear that Bruno is not writing here as an advocate of accepted moral standards, and that the *Candelaio* is not trying to convey the message that a traditional hierarchical order has to be restored.¹⁸ On the contrary, rather than presenting the accustomed power relationships, Bruno highlights the idea that vicissitude and occasion are of decisive importance for the outcome of any action. "*Omnio rero vecissitudo este*." Indeed, the lion and the ass become interchangeable actors, whose

positions in politics are determined by their current historical achievements.

The macaronic wording in the above quote implies that Sanguino is referring to some authority, and indeed the sentence is a precise reference to the political thought of Nicolò Machiavelli.¹⁹ The Florentine philosopher discusses these ideas in his two most influential works, *Il Principe* and the *Discorsi*. According to Machiavelli, *vicissitudo* and *occasione* are fundamental political categories that structure politics, because they are decisive for the fates of individuals and for entire civil communities. Machiavelli thinks that we may achieve unexpected political victories by taking into account the role of constant change and that of the right opportunity. The author describes in great detail some spectacular examples from the Italian history of his day—for instance, the amazing efficiency of Pope Julius II during his military campaigns.²⁰ According to Machiavelli's analysis, luck in politics is the result of the individual's initiative and momentary capacity to adapt to the given historical situation. This process is dependent on the individual temperament, which is expressed in a special kind of *virtù*. For instance, elderly (and hence more prudent) men tend to have less luck than the reckless young who are better equipped to force Dame Fortune.²¹ In accordance with contemporary Renaissance usage, the word *virtù* thus translates not merely as "virtue" in the sense of a (positive) moral quality. The word also denotes the idea that all natural objects have an inherent power or potential, just as certain medicines may have the capacity to heal a disease; *virtù* also conveys a fundamental physiological disposition, or the essential quality of a thing—for instance, the loadstone's capacity to attract iron. Hence, the term may be applied in a meaningful way to all beings—be they human, animal, vegetable, or inanimate. The ambiguity of the notion allows Machiavelli to say that we may do very bad, dishonourable things which are nevertheless in accordance with our *virtù*. Just as bad habits are overcome only with difficulty, the distinguishing qualities of individual *virtù* are even harder to change, because they are dependent on the body's physical dispositions. This aspect of *virtù* is the reason why the Machiavellian *principe* is doomed to lose power the very moment he is unable to adapt his specific qualities to the effects of *vicissitudo* which are manifest in the continually changing historical circumstances.²²

If we now turn again to the *Candelaio* and to our opening quote, we may easily detect a Machiavellian political attitude in Bruno's obscene fable. This doctrine is formulated in a language where both levels of human experience—politics and sexuality—become interchangeable. In the time in which Bruno was working, this grotesque appearance of contemporary pol-

itics in the *Candelaio* (which is at the same time both discreet as well as brashly obscene) does not come as a surprise. We only have to recall that Henri III, to whom the comedy is dedicated, did not only have great interest in reading Machiavelli's *Principe* and *Discorsi*, the King of France also found himself in a difficult political situation.²³

As nobody seems to have noticed yet, our story in the *Candelaio* contains a clear and unequivocal message to Henri III. This message becomes obvious the moment we pay attention to the local details in which the fable of the lion and the ass is set. (It has often been noted that such topographic hints generally play an important role throughout the *Candelaio*, as well as in Bruno's art of memory).²⁴ In order to "go to Rome," the two animals had to cross the river Garigliano twice. The ass and the lion wanted to reach the center of the Italian peninsula, the capital of the Church state. In Machiavelli's time this was exactly the road the French and the Spanish armies had taken when seeking to gain hegemony over the entire peninsula.²⁵ To this end, both powers had taken the road via Naples. During the last years of the fifteenth century, the city was briefly conquered by French troops. After long and complicated wars, the French were finally defeated in the last days of December 1503, by Consalvo Ferrante di Cordova (1543– 1515), "el Gran Capitán," at none other place than the river Garigliano.²⁶ For the centuries to come, this decisive battle cemented the power of Fernando il Cattolico (and consequently that of the Spanish crown) in Southern Italy. In the context of our story, it is no coincidence that the pontoon bridge which the Spanish troops had build overnight to stage a surprise attack on the French armies became decisive for their victory over the French armies. Against this historical backdrop, it is not without irony and sarcasm that Bruno (who was anti-Spanish, anyway) represented the political struggle of foreign powers fighting over his native country as a confrontation between sly, sodomizing asses and noble, abused lions.²⁷ But this is not all: Sanguino's reference to *vicissitudo* also points out that the political situation will not remain static forever. He is thereby implying that the Lion King (according to my reading, Henri III) will be in a position to regain the Kingdom of Naples.

However one wants to assess Bruno's political optimism and his concomitant hopes for change in the fragile balance of power between Spain and France, there are some other aspects to be taken into consideration. To start with, in the fable of the lion and the ass, Bruno is referring to historical events that had no direct bearing on the day-to-day French politics of the early 1580s. As far as I can see, Machiavelli, too, comments only indirectly on the battle at the Garigliano.²⁸ Perhaps by discreetly naming

a river, the Nolan wanted to convey to his audience a sense of the political experience of loss which, by dint of the distance of time, was not to be felt as painfully as other, more recent events. In any case, the river Garigliano connects French and Spanish interests and is emblematic of the vicissitudes of politics. They, in turn, reflect Bruno's hopes for a change in his personal situation, as well as that of his home country, which he expresses openly in the *Candelaio*'s dedication to the Signora Morgana.²⁹

The discreetness of the topographical hint in our opening quote is thus, only at first sight, in stark contrast to the brazen fable with its contents of revenge, vendetta, and rape, which temporarily eclipse the actual political context of the fable of the lion and the ass. As we have seen, the reconstruction of this context and its implicit anti-Spanish polemics require a careful reader and an awareness of historical details. In all probability, Bruno did not want theatregoers to immediately understand the political aspect of the salacious fable. Here we can see how Bruno adapts Machiavellian notions (*vicissitudo*, *occasione*) in the context of his fierce criticisms of the political situation in his native country—that is, the Spanish rule over the southern part of the Italian peninsula. Sanguino's story is emblematic for Bruno's own, at times, rather messianic hopes for political, religious, and social improvement throughout Europe.

But also the fools in Bruno's comedy may serve as instructive, albeit negative embodiments of Machiavellian ideas. Again, Bonifacio, with his grotesque stupidity, laziness, and cowardice, is a rewarding example. This fool becomes the central victim of the machinations of the cunning ones: Gioanbernardo, the pander Lucia, and Sangiuno. Thus, it is not surprising that Bonifacio appears as a negative personification of Machiavelli's ideas. The fool in the *Candelaio* maintains that the positive outcome of an affair is solely dependent on fate (*sorte*); and therefore rational analysis, the critical assessment of a situation prior to taking any kind of action, is unnecessary (IV, 5). It is obviously no coincidence that Machiavelli in *Il Principe* takes the opposite view. He holds that we are not exclusively guided by fate, but that we are, at least to some extent, capable of protecting ourselves against the adversities of fortune—just as, in times of drought, well-organized communities build dams against floods.³⁰ We have already seen how Bruno visualizes this idea by saying that all actions first have to be deliberated; for, once the head has passed through them (*che passi la testa*), then the rest of the body follows easily. This sarcastic résumé of Bonifacio's stupidity can be read as a funny echo of the beginning of the comedy; for, in Act I, Scene 8, Gioanbernardo pokes fun at Bonifacio:

It's a good sign when things go through the mind; take care that your mind doesn't itself start going through things, because it could get caught up in something, and your brain, at night, might end up waiting up in vain for it to return to dinner; and then it would be just like the housewife, searching for her intellect with a lantern in her hand. (Bruno, *Candle-bearer*, 82, modified)

È buon segno quando le cose vanno per la mente; guàrdati che la mente non vadi essa per le cose: per che potrebbe rimaner attaccata con qualch'una di quelle, et il cervello la sera in darno l'aspettarebbe a cena; e poi bisognasse far come la matre di fameglia ch'andava cercando lo intellecto co la lanterna. (Bruno, *Œuvres complètes*, vol. 1, 88)

Bruno here develops a powerful and funny visualization of Bonifacio's mental state. He depicts the fool's brainless behaviour that causes him to get carried away with things instead of comprehending them, as well as the unsuccessful search for a mind that does not exist.³¹ In yet another context, Bonifacio turns out to be the negative image of Machiavellian *virtù*. In Act V, Scene 17, the fool admits to having used the wrong hair for his bogus magical love charm, by means of which Bonifacio had wanted to 'bind' the gorgeous prostitute Signora Vittoria. Instead of using the hair of the object of his desire for the magical puppet, the fool used that of his own wife, Madonna Carubina. Of course, this scene is already highly comical, because the charlatan Scaramurè has successfully convinced Bonifacio that this was the main reason why his magic had not worked on the prostitute Vittoria.³² It is important to pay close attention to Bonifacio's wording when he says, "I am certain of the canker that's devouring my slut of a fortune. The hair was my wife's [...] I nimbly collected it after she had combed it on Saturday night" (V, 17; Bruno, *Candle-bearer*, 166)—"Son certo del cancaro che si mangi quella bagassa di mia fortuna: i capelli son di mia mogliera[...]; quelli raccolsi io destramente sabbato a sera, quando si pettinava" (Bruno, *Œuvres complètes*, vol. 1, 345). This statement of the cowardly would-be adulterer turns out to be a very funny caricature of Gioanbernardo's much wiser stratagems. Instead of valiantly grasping Fortune by the hair (just as Machiavelli had recommended it in a famous passage from *Il Principe*),³³ the fool Bonifacio furtively—and hence, cowardly—takes the easily available hair of his wife. The fact that the fool scolds Fortune for the mischief he has gotten himself into also indicates that Bonifacio has absolutely no idea about even the most basic principles of Machiavellian thought. It is worth mentioning that the difference between the two protagonists in the *Candelaio* is here presented as a *mise-*

en-scène of two distinct, yet related images: Gioanbernardo grabs his fortune by the hair, whereas Bonifacio furtively collects his wife's hair. It is a well-known fact that images of this kind are of strategic importance in the art of memory, where they serve as an aid in recollecting concrete things as well as abstract ideas. In our case, Bruno gives us an impressive visualization of Machiavellian precepts. Yet, it would be quite misleading to suppose that Bruno thereby wants to imply that all kinds of ruses (*inganno*) are to be detested in principle. Quite the contrary is true; for, in order to achieve his goal—i.e., the seduction of Madonna Carubina—Gioanbernardo (and everybody else in the comedy) uses a wide array of deceptive visual stratagems, such as different disguises.³⁴

It does not come as a surprise that Machiavelli also theorizes the cunning manipulation of outward appearances. According to *Il Principe*, this stratagem is adequate to trick most people and is therefore instrumental in securing the lasting dominion of the prince. In an often quoted passage, Machiavelli says, "Men in general judge more by the eyes than by their hands: everyone can see, but few can feel. Everyone sees what you seem to be, few touch upon what you are."³⁵ By inverting the traditional hierarchy of the senses, Machiavelli here argues for the supremacy of the sense of touch. From the perspective of the history of ideas, this positive re-evaluation of the most physical of all senses (which was intimately connected to sexuality) entails a decidedly anti-Platonic and, subsequently, an anti-Christian position. For according to these traditions, the sense of sight occupied the top of the hierarchy of the senses (not least because vision was sensitive to potentially noumenal light and hence served as a medium for the vision of Platonic forms).³⁶ In the *Candelaio*, Bruno's re-evaluation of the sense of touch parallels Machiavelli's ideas. For both authors, it is hands-on knowledge rather than detached vision that is conducive to true insight and the acquisition of power.³⁷

As a consequence, the tension between cognition and sensory perception becomes manifest in the *Candelaio* when the comedy deals with the different forms of physical touch. This happens very prominently during those occasions when Gioanbernardo tries to seduce Madonna Carubina. Here the sense of touch is put in relation to the woman's honour (*onore*).

Life of my life, I believe you know well what honour is and also what dishonour is. Honour is nothing more than a certain esteem or reputation, which is why honour remains intact as long as one's esteem and reputation remain unchanged. Honour is the good opinion that others have of us. Whilst this lasts, honour lasts. And it's not what we

are and what we do that makes us honourable or dishonourable, but rather the opinions and the esteem of others. (V, 11; Bruno, *Candlebearer*, 159)

Vita della mia vita, credo ben che sappiate che cosa è onore, e che cosa anco sii disonore. Onore non è altro che una stima, una riputazione: però sta *semper* intatto l'onore, quando la stima e riputazione persevera la medesima. Onore è la buona opinione che altri abbiano di noi: mentre persevera questa, persevera l'onore. E non è quel che noi siamo e quel [che] noi facciamo, che ne rendi onorati o disonorati, ma sì ben quel che altri stimano e pensano di noi. (Bruno, *Œuvres complètes*, vol. 1, 321–323)

The dialectics of being and appearance become incarnated here in a mighty social regulative, the notion of honour. In Gioanbernardo's nocturnal discourse of seduction and betrayal, *onore* becomes manifest as a potentially deceptive visual appearance.³⁸ As long as this appearance remains untouched—that is, as long nobody acknowledges or “sees” it being publicly damaged—there are no sanctions to be feared. Machiavelli would have certainly agreed.³⁹

Yet, for Bruno, these ideas also have metaphysical implications that reach farther than politics and human sexuality; since, according to Bruno, human beings are generally incapable of perceiving the essences of things. In our cognitive processes, therefore, we are dependent on the accidental qualities of objects, which thus appear to us in a historically contingent form. Just as clothes (or false beards) can change people's identities on Bruno's comic stage, so these accidental distinctions make all the difference there is; for, to our minds, they constitute all things. Rather than being associated with the Platonic concept of the vision of eternal forms, deceptive sight here confirms the omnipresence of *vicissitudo*. When viewed against this philosophical backdrop, it does not come as a surprise that Bruno's *Spaccio* also deals with the topic of *onore*.⁴⁰

But the two radical philosophers under consideration do not only bear similarities in respect to the concepts of *vicissitudo* and *onore*; they also share common ground in their vehement criticism of Christianity. Because of its otherworldly orientation, Bruno and Machiavelli perceive Christian doctrine as harmful to the community. Both favourably contrast the pagan ideals of heroism and self-sacrifice for the body politic with their contemporary religious culture. According to Machiavelli, Christianity was responsible for the fall of the Roman Empire and the subsequent cultural and political decline. In contrast to the Christian ideologies of weakness

and disinterestedness in politics, Machiavelli and Bruno glorify *virtus romana*. For the official cult of the Empire lead to an education of citizens that were brave warriors and whose primary goal was the well-being of the community.⁴¹ In accordance with such ideas, Bruno assumes in the *Cena* an Averroistic position, according to which the verdicts of philosophers overrule the decisions of the theologians. The latter are merely responsible for the propagation of certain maxims for the guidance of the common people (*vulgus*), aiming to make good citizens out of them.⁴² From Bruno's philosophical perspective, Gioanbernardo epitomizes these ideas in *Candelaio* while seducing Madonna Carubina:

CARUBINA: Even admitted that this is the case amongst men, what would you say about the angels and the saints who see everything and judge accordingly?

GIOANBERNARDO: They don't want to be seen any more than they are seen; they don't want to be feared any more than they make themselves feared; they don't want to be known any more than they make themselves known. (V, 11; Bruno, *Candle-bearer*, 159, modified)

CARUBINA: Sii che si vogli de gli omini, che dirrete in conspetto de gli angeli e de' santi, che vedeno il tutto, e ne giudicano?

GIOANBERNARDO: Questi non vogliono esser veduti più di quel che si fan vedere; non vogliono esser temuti più di quel che si fan temere; non vogliono esser conosciuti più di quel che si fan conoscere. (Bruno, *Œuvres complètes*, vol. 1, 323)

It is interesting to note that Bruno explicitly classifies Gioanbernardo's argument as "Epicurean philosophy." What at first sight appears to be nothing more than a sarcastic remark in the preface to the comedy⁴³ crops up again in the *Spaccio*. Bruno here says that the gods only care for us insofar as this is useful for our own progress.⁴⁴

In the infinite universe, human beings are therefore left alone; and, due to our often limited intellectual abilities, they are inclined to follow false prophets. Christ was, in Bruno's eyes, such a "Mercurio."⁴⁵ Therefore, the Nolan asks us to break with this illusory religion and to exchange its wrong ideas for his own Nolan philosophy of the divine and infinite material universe.⁴⁶ This complete reversal, however, is to come about as a quiet revolution; because, for the common people, everything stays the same. Thus, appearances and names should not be changed, as it is the task of religion to prevent social upheaval and chaos. In the *Spaccio*, we learn that Christianity is not to be abolished in name; rather, it has to be filled with

new and correct ideas that should be accessible to the knowing elites.⁴⁷ Viewed from this perspective, Bruno's discrete subversion of Christianity can be seen as being reflected in Bonifacio's fate in the *Candelaio*. The fool is humiliated by the petty criminals disguised as policemen and by the pander Lucia. Bonifacio is physically punished by his wife, and he is forced to be friends with the socially inferior Gioanbernardo, who (albeit without Bonifacio's knowing) put the horns to his head. Yet, the hapless idiot may continue to live just as he used to, with the sole and important difference that his wrong ideas about the world have been utterly contradicted. The spectators of the comedy know that even though Bonifacio's *onore* remains unblemished, the actual power relations have shifted in favor of his opponent Gioanbernardo, Bruno's alter ego.⁴⁸

BIBLIOGRAPHY

Primary sources

- Aretino, P. *Cortigiana. Opera Nova. Pronostico. Testamento dell'elefante*. Ed. A. Romano. Milan: Rizzoli, 1989.
- Boccaccio, G. *Decameron*. Ed. M. Marti. Milan: Rizzoli, 1998.
- Bruno, G. *Dialoghi italiani*. Eds. G. Gentile and G. Aquilecchia. Florence: Sansoni, 1958.
- . *Jordani Bruni Nolani Opera latine conscripta*. 3 vols., 8 parts. Eds. F. Fiorentino, F. Tocco, H. Vitelli, V. Imbriani and C. M. Tallarigo. Naples/Florence: Morano/Le Monnier, 1879–1891. Reprint Stuttgart/Bad Cannstatt: Frommann, 1961–1962.
- . *Œuvres complètes*. 7 vols. Eds. Y. Hersant and N. Ordine. Paris: Les Belles Lettres, 1993–1999.
- . *Candle-bearer*. Ed. and trans. G. Moliterno. Ottawa: Dovehouse Editions, 2000.
- . *Der Kerzenzieher—Candelaio*. Ed. and trans. S. Koder. Hamburg: Meiner, 2003.
- Della Porta, G. *Teatro*. 4 vols. Ed. R. Sirri. Naples: Edizione scientifica Italiana, 2000–2003.
- Erasmus, D. *Opera omnia Desiderii Erasmi Roterodami. Ordinis 2 tomus 2. Adagiorum Chilias prima*. Ed. M. L. Poll-van de Lisdonk. Amsterdam: Elsevier, 1998.
- Ficino, M. *De amore. Commentaire sur le Banquet de Platon*. Ed. R. Marcel. Paris: Les Belles Lettres, 1956.
- Guicciardini, F. *Opere*, vol. 2, *Storia d'Italia (Libri I–X)*. Ed. E. Lugnani Scarano. Turin: Utet, 1981.
- Machiavelli, N. *Il Principe*. Eds. G. Inglese and F. Chabot. Turin: Einaudi, 1995.
- . *Discorsi sopra la prima deca di Tito Livio*. Eds. G. Sasso and G. Inglese. Milan: Rizzoli, 1999.
- . *The Prince*. Trans. P. Bondanella. Oxford: Oxford University Press, 2005.
- . *La Mandragola, Belfagor, Lettere*. Eds. M. Bonfantini, G. Mezzanotte and P. Gobetti. Milan: Mondadori, 2006.

Secondary sources

- Bolzoni, L. *La stanza della memoria*. Turin: Einaudi, 1995.
- Caroll, L. "Machiavelli's Veronese Prostitute: *Venetia figurata*?" In *Gender Rhetorics: Postures of Dominance and Submission in History*. Ed. R. C. Trexler, 93–106. Binghampton: Medieval & Renaissance Texts & Studies, 1994.
- Ciliberto, M. *Giordano Bruno*. Rome: Laterza, 1990.
- . *Umbra profunda. Studi su Giordano Bruno*. Rome: Edizioni di storia e letteratura, 1999.
- Clucas, S. "Giordano Bruno's *De imaginum, signorum et idearum compositione*: Art, Magic and Mnemotechnic." *Physis* 38 (2001): 75–98.
- . "Simulacra et signacula. Memory, Magic and Metaphysics in Brunian Mnemonics." In *Giordano Bruno: Philosopher of the Renaissance*. Ed. H. Gatti, 251–72. Aldershot: Ashgate, 2002.
- Doninger, W. *The bedtrick: Tales of sex and masquerade*. Chicago/London: University of Chicago Press, 2000.
- Fellmann, F. "Einleitung." In G. Bruno, *Von den heroischen Leidenschaften*. Ed. and trans. C. Bacmeister, VII–XL. Hamburg: Meiner, 1989.
- Galasso, G. *Storia d'Italia*, vol. 15,2, *Il regno di Napoli. Il mezzogiorno spagnolo (1494–1622)*. Turin: Utet 2005.
- Gatti, H. *Giordano Bruno and Renaissance Science*. Ithaca: Cornell University Press, 1999.
- Granada, M. A. *Giordano Bruno, universo infinito, unión con Dios, perfección del hombre*. [Giordano Bruno, infinite universe, union with God, the perfection of man]. Barcelona: Herder, 2002.
- . *La reivindicación de la filosofía en Giordano Bruno* [The reclaim of philosophy in Giordano Bruno]. Barcelona: Herder, 2005.
- Kodera, S. "Einleitung zum *Candelaio*." In G. Bruno, *Der Kerzenzieher—Candelaio*. Ed. and trans. S. Kodera, I–LVI. Hamburg: Meiner, 2003.
- . "Einleitung zur *Cabala*." In G. Bruno, *Die Kabbala des pegaseischen Pferdes. Werke*. Vol. 6. Ed. S. Kodera. Trans. K. Neubauer, 2008, I–CIX. Hamburg: Meiner.
- . "Un fallo che dissipa le tenebre: la 'sostituzione del partner' nella versione di Giordano Bruno." In *Sesso nel rinascimento: pratica, perversione e punizione nell'Italia rinascimentale*. Ed. A. Levy, 245–59. Turin: Le Lettere, 2009.
- Ordine, N. "Introduzione." In G. Bruno, *Opere italiane*. Vol. 1. Turin: Utet, 2002.
- . *La soglia dell'ombra, letteratura, filosofi a e pittura in Giordano Bruno*. Venice: Marsilio, 2003.
- . "Teatro e conoscenza. Su alcuni luoghi della Mandragola e del Candelaio." In *Il teatro di Machiavelli*. Ed. G. Barbarisis and A. M. Cabrini, 527–47. Milan: Monduzzi, 2005.
- . *Contro il Vangelo armato. Giordano Bruno, Ronsard e la religione*. Milan: Raffaello Cortina, 2007.
- Parel, A. J. *The Machiavellian Cosmos*. New Haven and London: Yale University Press, 1992.
- Puliafito-Bleuel, A. L. *Comica pazzia. Vicissitudine e destini umani nel Candelaio di Giordano Bruno*. Florence: Olschki 2007.
- Ricci, S. *Giordano Bruno nell'Europa del Cinquecento*. Rome: Salerno, 2000.

- Rowland, I. *Giordano Bruno: Philosopher/Heretic*. New York: Farrar, Straus, and Giroux, 2008.
- Ruggiero, G. *Machiavelli in Love: Sex, Self, and Society in the Italian Renaissance*. Baltimore: Johns Hopkins University Press, 2007.
- Sabbatino, P. *Giordano Bruno e la "Mutazione" del rinascimento*. Florence: Olschki, 1993.
- . *A l'infinito m'ergo. Giordano Bruno e il volo del moderno Ulisse*. Florence: Olschki, 2003.
- Saiber, A. *Giordano Bruno and the Geometry of Language*. Aldershot and Burlington: Ashgate, 2005.
- Sturlese, R. "Per un'interpretazione del *De umbris idearum* di Giordano Bruno." *Annali della Scuola Normale Superiore di Pisa. Classe di lettere e filosofia* 3, 22 (1992): 942–67.
- Viviani, V. *Storia del teatro napoletano*. Naples: Guida, 1969.

NOTES

- 1 Bruno, *Œuvres complètes*, vol. 1, 141–43. In the following, I will quote passages from the *Belles lettres* edition of Bruno's works, e.g. from the *Candelaio* as Bruno, *Œuvres complètes*, vol. 1. The English passages of the *Candelaio* are from Gino Moliterno's excellent translation, Bruno, *Candle-bearer*. For Bruno's other Italian dialogues, I shall refer to the edition of Gentile and Aquilecchia, Bruno, *Dialoghi italiani*. "Now let's drop all this banter and get down to business. There was a time when the lion and the ass were friends. As they travelled together on pilgrimage, it became necessary, when they came to rivers, for each to take a turn in carrying the other; that is to say that one time the ass would carry the lion on his back and the next time the lion would carry the ass on his back. Needing to get to Rome, then, they reached the Garigliano and, there being neither boat nor bridge for them to use, the ass took the lion on his back. As they swam to the other shore, the lion, fearful of falling in, dug his claws more and more deeply into the ass's skin so that, in the end, the poor animal was shredded to the bone. And the poor wretch, like one experienced in patience, bore it as well as he could without uttering a sound; except that when they were safely out of the water, he shook his back a little, rolled over in the sand a few times and then continued on. Eight days later, as they were returning, it was the duty of the lion to carry the ass, who, finding himself on top and not wanting to fall into the water, with his teeth gripped the lion by the nape; and this not being enough to steady him, he stuck his instrument—or how can we call it, his ... well, you know—let's say, to keep it clean, in the hole, under the tail where there is no fur. The lion felt more pain than a woman in labour and so shouted: "Hey there, hey there, oh, oh, oh, dear me! Hey there, you traitor!" Whereupon the ass replied with a stern face and a serious voice: "Patience, my brother. You see that I have no other claw to grab but with this." And so the lion had no choice but to suffer and endure until the crossing was over. To wit, "*Omnia reo vecissitudo este*." And no one is so much of an ass that they would refuse to seize the opportunity if chance should provide it. A few days ago Master Bonifacio took umbrage at something I had done, and today,

- when I thought he had forgotten the incident, he repaid me worse than the ass did the lion; but I don't want the matter to rest there." Bruno, *Candle-bearer*, 100.
- 2 For an account of Bruno's early years, see for instance Ciliberto, *Giordano Bruno* or, more recently, Rowland, *Giordano Bruno*. For a concise recent summary of research on Bruno, see Saiber, *Geometry*, 9–12. For a summary and analysis of the *Candelaio*, see Moliterno, "Introduction," in Bruno, *Candle-bearer*, 9–49; and Kodera, "Einleitung zum *Candelaio*," VII–LV.
 - 3 Most notably perhaps is Pietro Aretino's *Cortigiana*. (See also note 6 below.)
 - 4 Ordine, *Soglia*, 45; cf. also Ciliberto, *Bruno*, 25.
 - 5 On Bruno's art of memory, see Sturlese, "Per un'interpretazione"; Clucas, "De imaginum"; and Clucas, "Simulacra."
 - 6 With the possible exception of Aretino's *Cortigiana*. Messer Maco, a painter from Venice, was actually a friend of Aretino's. Boccaccio's *Decameron* (VII, 3 and 6; IX, 3 and 5) recounts delightful stories about the *beffe* that were played to Calandrino, a simpleton and painter, by Bruno and Buffalmaco, two clever Florentine artists and historical figures.
 - 7 As stated by the title page.
 - 8 This is a plot of ancient Indian origins which was well known in Italy at least since the *Decameron*, cf. Doninger, *The Bedtrick*, 30 and passim. This trick also figures in Bibbiena's *Calandria*. Kodera, "Einleitung zum *Candelaio*," XXXII–XXXVI, argues that this scene can be read as an enactment of Bruno's doctrine of shadows and a parody of the Platonic myth of the cave. See also Kodera, "Un fallo."
 - 9 Bruno frequently fails to name authors with whom he has an intellectual affinity. Granada, *Universo infinito*, 179 (with many references) has shown that when Bruno mentions authors such as Ficino, Nicholas of Cusa, or Copernicus, then this is often indicative of both a dependence and an intellectual rupture with the author in question. The entire chapter of Granada's book (169–96) is a valuable introduction to the relationship between Bruno and Machiavelli. See also Ordine, "Teatro e conoscenza," 532sq. On the presence of Machiavelli in Bruno's *Cabala*, see Kodera, "Einleitung zur *Cabala*," LXXXVIIIssq.
 - 10 "Notwithstanding that what I enjoyed tonight had not been given to me by the gods or nature and had been denied to me by Fortune, judgement made me recognise the opportunity, diligence made me grab it by the hair, and perseverance allowed me to hold it fast" (V, 19; Bruno, *Candle-bearer*, 177, modified).
 - 11 Cf. Machiavelli, *Principe*, chap. 25, 167: "Concludo, adunque, che, variando la fortuna, e stando li uomini ne' loro modi ostinati, sono felici mentre concordano insieme, e, come discordano, infelici. Io iudico bene questo, che sia meglio essere impetuoso che rispettivo; perché la fortuna è donna, et è necessario, volendola tenere sotto, batterla et urtarla. E si vede che la si lascia più vincere da questi, che da quelli che freddamente procedano. E però sempre, come donna, è amica de' giovani, perché sono meno rispettivi, più feroci e con più audacia la comandano." Cf. also Ordine, *La soglia dell'ombra*, 109sq. For another relevant passage, cf. Machiavelli, *Principe*, chap. 6, § 10, 33: "Ed esaminando le azioni e vita loro non si vede che quelli [sc. Ciro, Romulo, Teseo] avessino altro da la fortuna che la occasione, la quale dette loro materia e potere introdurvi dentro quella forma che parse loro: e senza quella occasione la virtù dello animo loro si sarebbe spenta e senza virtù la occasione sarebbe venuta invano."

- 12 For the entire passage, Machiavelli, *Mandragola*, 51sq.
- 13 Machiavelli, *Principe*, 35 (chap. 6, § 16): "Quelli e' quali per le vie virtuose [...] diventono principi, acquistano el principato con difficoltà, ma con facilità lo tengono [...]" see also *ibid.*, 35, chap. 6, § 29.
- 14 On this topic cf. Carroll, "Veronese Prostitutes," 97 and 102–105. See also Bruno, "Theses de Magia," in Bruno, *Opera latine conscripta*, III, 491 and "De vinculis," *ibid.* 696–97. Cf. also Ficino, *De amore*, 213 (Lib. 6, chap. 9): "[...] sagaxque venator, nova machinamenta sempre contextens [...] per omnem vitam incantator, fascinatorque, potens veneficus atque sophista." Significantly, the fifteenth-century Italian translation of the *De amore* has *uccellatore* for the Latin *venator*.
- 15 Viviani, *Teatro napoletano*, 105–106.
- 16 As Ferdinand Fellmann has observed in his highly readable introduction to the German translation of the *Eroici furori*, Bruno uses obscenity as a means to create immanence. "Der kognitive Impuls der obszönen Sprache liegt in ihrem Realismus, der Vermittlungen ausschließt. Das Obszöne ist seinem Wesen nach destruktiv, entlarvend, Ausdruck der Vergeblichkeit, die Sinnlichkeit durch Spiritualität zu überbrücken und auszudrücken. Die obszöne Sprache indiziert somit als Gegenteil von Ausschweifung, sie fungiert als elementare Form, sich der Endlichkeit der menschlichen Existenz zu stellen. [...] das Obszöne ist Ausdruck der Vergänglichkeit, die von keiner Transzendenz aufgefangen wird." (Fellmann, "Einleitung," XXV)
- 17 The topic of *occasione*, the auspicious moment, which one has to recognize to grab it, along with being a part of the later *Dialoghi italiani*, is also present in the *Spaccio* (see *Dialoghi italiani*, 713): "Scaccia la disavventura, apprendi la Fortuna pe' capelli; affretta quando meglio ti pare, il corso della sua ruota: e quando ti sembra bene, figgli il chiodo accio non scorra."
- 18 At the level of the stage-play, this Machiavellian ideology of vicissitudinal change is reflected in many aspects of the *Candelaio*. Again, the persona of Sanguino is a case in point. Disguised as the dreaded Capitano Palma, this *grazioso* will arrest the Pedant Manfurio and the other negative protagonists of the *Candelaio*; he will have them beaten and robbed by his companions, who are petty criminals dressed up as policemen. Owing to his cunningness and his capacity to seek out the right *occasione*, Sanguino thus exerts considerable power over people occupying a much more powerful social position.
- 19 It may seem as if the Nolan were taking a detour, since the phrase "Omnium rerum vicissitudo est" is from Terence and was repeated in Erasmus *Adagia*, in *Opera omnia*, 1, 7, 63: "Omnium rerum vicissitudo est. Quae sententia significat in rebus mortalium nihil esse perpetuum, nihil stabile, sed omnia velut aestuario quodam fluxu refluxuque decedere atque accedere. Atque his vicibus fortunae, ab aliis ad alios transferuntur imperia, opes, gloria, voluptas, eruditio: denique quicquid est, aut commodorum aut incommodorum." Nevertheless, it is only the following Italian passage from the *Candelaio* that makes the connection to Machiavelli obvious; for Erasmus here just explains the word in the context of worldly vanity. He does not mention the idea that we should take advantage of ever-changing situations.
- 20 Cf. Machiavelli, *Principe*, 166sq. (Chap. 25, § 18–24); Machiavelli, *Discorsi*. 495sq. (Lib. III, 9, esp. § 15sq.)

- 21 Cf. also Ordine, *Vangelo armato*, 191sq., who points to the parallels between *Mandragola* (IV, 2) and *Candelaio* (V, 19). However, Ordine does not elaborate on the inherent tensions between the effects caused by fortune, on one hand, and individual human endeavour, on the other. Nonetheless, both Machiavelli and Bruno address the topic (in *Mandragola*, I, 3, and *Candelaio*, V, 19, respectively).
- 22 This is a structurally important idea, because it forms the basis for Machiavelli's republicanism. A board of leaders of the state will reunite different and individual forms of *virtù*. Therefore, it is in a far better position to adapt to changing historical situations and hence to cope more easily with the vicissitudes of politics. On *virtù*, cf. Machiavelli's comments on the emperor Septimius Severus in Machiavelli, *Principe*, 130 (Chap. 19, § 41) and *Discorsi*, 186 (Lib. I, 60, § 2sq.). See also the interesting remarks in Ruggiero, *Machiavelli in Love*, 184. On continuous change, cf. Machiavelli, *Discorsi*, 78–79 (Lib. I, 6, § 34). On the physiological basis of *virtù*, cf. also Parel, *Machiavellian Cosmos*, 86–112.
- 23 See for instance Ordine, *Vangelo armato*.
- 24 See for instance Sabbatino, *Mutazione*, 65–81.
- 25 On the destabilizing role of the Papal state on the Italian Peninsula, cf. Machiavelli, *Discorsi*, 96sq. (Lib. I, 12, § 19sq.): “E la cagione che la Italia non sia in quel medesimo termine, né abbia anch'ella o una repubblica o uno principe che la governi, è solamente la Chiesa: perché, avendovi quella abitato e tenuto imperio temporale, non è stata sì potente né di tanta virtù che l'abbia potuto occupare la tirannide d'Italia e farsene principe; e non è stata, dall'altra parte, sì debole, che, per paura di non perdere il dominio delle sue cose temporali, la non abbia potuto convocare uno potente che la difenda contro a quello che in Italia fusse diventato troppo potente: come si è veduto anticamente per assai esperienze, [...] Non essendo, adunque, stata la Chiesa potente da potere occupare la Italia, né avendo permesso che un altro la occupi, è stata cagione che la non è potuta venire sotto uno capo; ma è stata sotto più principi e signori, da' quali è nata tanta disunione e tanta debolezza, che la si è condotta a essere stata preda, non solamente de' barbari potenti, ma di qualunque l'assalta.”
- 26 See for instance Galasso, *Regno di Napoli*, 163–66. For a contemporary description of the actual military campaign, cf. Guicciardini, *Opere*, 634–64 (Lib. VI, chap. 7); and *ibid.*, 664 (Lib. VII, chap. 10) for the dismal reactions to the military failure in France.
- 27 On Bruno's anti-Spanish sentiment and his plans for reform in France, see for instance Sabbatino, *A l'infinito*, 87–90. That Henri III was perhaps homosexual is in our context a rather audacious detail. Even so, this topic is already thrown at the reader/spectator in the title of the comedy, since the word *candelaio* denotes a passive homosexual.
- 28 Ferrante (Fernández) de Córdoba is also mentioned by Machiavelli as the conqueror of the Kingdom of Naples, cf. Machiavelli, *Discorsi*, 125 (Lib. I, 29, § 13). The *capitano's* changing fates served Machiavelli as an example both of the effects of universal vicissitude and of the ingratitude of many princes. Instead of properly rewarding the general for his heroic deeds, Fernando de Aragón recalled Ferrante to Spain, where he was dismissed from all of his offices and died in obscurity, having been confined to his native town. Cf. also notes, *ibid.* 242 and Galasso, *Regno di Napoli*, 205sq.

- 29 "Il tempo tutto toglie e tutto dà; ogni cosa si muta, nulla s'annihila; è un solo che non può mutarsi, un solo è eterno, e può perseverare eternamente uno, simile e medesimo.—Con questa filosofia l'animo mi s'aggrandisse, e me si magnifica l'intelletto. Però qualunque sii il punto di questa sera ch'aspetto, si la mutazione è vera, io che son ne la notte, aspetto il giorno, e quei che son nel giorno, aspettano la notte." Bruno *Candelaio*, in *Œuvres complètes*, vol. 1, 13–15.
- 30 See Machiavelli, *Principe*, 161–63 (Chap. 25, § 1–8). Machiavelli's position, however, is not always consistent. In Machiavelli, *Discorsi*, 372–74 (Lib. II, chap. 29), he describes the role of fortune as being far more important and unpredictable than in *Il Principe*.
- 31 See my note in Bruno, *Der Kerzenzieher*, 185, note 39 for possible literary references.
- 32 When we more take into consideration that the two female personae are set in a double role, the extent to which Bonifacio is misled becomes even greater than it already appears. "Quella bagassa che è ordinata per rapresentar Vittoria e Carubina, [...]" Bruno *Candelaio* in *Œuvres complètes*, 37 ("Antiprologo").
- 33 See *Candelaio* (V, 19) as quoted above and Machiavelli, *Principe*, 161–63 (Chap. 25).
- 34 On this aspect, see Kodera, "Einleitung zum *Candelaio*," XIX–XXIX.
- 35 Machiavelli, *Principe*, 119 (Chap. 18, § 17): "E gli uomini in universali iudicano più alli occhi che alle mani; perché tocca a vedere a ognuno, a sentire a pochi: ognuno vede quello che tu pari, pochi sentono quello che tu se." Cf. Machiavelli, *The Prince*, 62. Cf. also Ordine, *Teatro e conoscenza*, 536sq.
- 36 For a characteristically Christian Neoplatonic position on the hierarchy of the senses, see Ficino, *De amore*, 179–81 (Lib. 5, ch. 2).
- 37 See also Kodera, "Un fallo," 250–54; Bruno, "De compositione imaginum," in *Opera latine conscripta* II, 3, 237; Ciliberto, *Umbra profunda*, chap. 2, esp. 279–81. For the general context, cf. Ricci, *Bruno nell'Europa*, 331.
- 38 On this topic and the relationship between *onore* and *virtù*, see Ruggiero, *Machiavelli in Love*, 175–91. Ruggiero's reading of one of Boccaccio's *Novelle* demonstrates that the concept of *virtù* tends to erode the boundaries of the social classes (ibid., 184): "But I would suggest that honour was generally a narrower concept, more focused on social station and the virtually ontological status of a person—what a person was at deep level—whereas *virtù*, while also profoundly concerned with status, was more concerned with what a person did and thus focused on an evaluation of one's abilities, prowess, and comportment in general."
- 39 For a very similar passage, see Della Porta, *Teatro*, II, 198 (*Fantesca*, V, 3): "L' onor non è bianco né rosso, che si possa vedere: l' onore sta nell'opinione degli uomini, però bisogna farlo secreto. È meglio esser tenuta buona e non esserci, ch'esser contaminata senza effetto." Cf. also ibid., 200sq. (*Fantesca* V, 5). Such ideas are already present in Boccaccio, for the husband in this novella maintains (albeit not without a good portion of sarcasm) that if he is to be cuckolded, then this should happen behind his back without his notice: "e tanto procacciò, che egli con buona pace riebbe la donna a casa sua; alla quale promise di mai più non esser geloso, e oltre a ciò le diè licenzia che ogni suo piacer facesse, ma sì saviamente, che egli non se ne avvedesse." Boccaccio, *Decameron*, II, 469, VII, 4.

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- 40 See also Bruno, *Spaccio*, in *Dialoghi italiani* 656; Bruno, *Œuvres complètes*, vol. 5, 201–203; and Puliafito–Bleuel, *Comica pazzia*, chap. 6.
- 41 For the contradictions between Christian religion and the dire realities of politics, cf. Machiavelli, *Discorsi*, 296–301 (Lib. II, chap. 2). For the relationship of this passage to Bruno’s concept of philosophy, see Granada, *Universo infinito*, 174–76.
- 42 Bruno, *Cena*, in *Dialoghi italiani*, 47–49; cf. Granada, *Universo infinito*, 180–82, with many references.
- 43 Bruno, *Candelaio*, in *Œuvres complètes*, vol. 1, 25sq. “[*Argumento*:] Con questo, (XI scena) Carubina rimane nelle griffe di Gioan Bernardo, il quale (come è costume di que’ che ardentemente amano) con tutte sottigliezze d’epicuraica filosofia (Amor fiacca il timor d’omini e numi) cerca di troncare il legame del scrupolo che Carubina, insolita a mangiar più d’una minestra, avesse possuto avere [...]” On Bruno and Lucretius, cf. Granada, *Reivindicación de la filosofía*, 85–106.
- 44 Bruno, *Spaccio* in *Dialoghi italiani*, 656; and Bruno, *Œuvres complètes*, vol. 5, 201–203. See also Puliafito–Bleuel, *Comica pazzia*, 143.
- 45 Cf. Bruno, *Cena*, in *Dialoghi italiani*, 32 “Mercuri ed Apollini discesi dal cielo, con multiforme impostura han ripieno il modo tutto d’infinite pazzie, [...] approvando e confirmado le tenebre cagliuose de’ sofisti ed asini [...]”
- 46 Cf. also Bruno, *Spaccio*, in *Dialoghi italiani*, 655; and in *Œuvres complètes*, vol. 5, 199.
- 47 See Granada, *Universo infinito*, 193–95; Bruno, *Spaccio*, 828 and 569; and Bruno, *Œuvres complètes*, vol. 5, 499 and 51. On the possible origins of this secular version of religion in Ronsard, cf. Ordine, “Introduzione,” 93, with references in note 103.
- 48 For a reading that identifies Bonifacio with Christ and Gioanbernardo with Bruno, see Koder, “Einleitung zum *Candelaio*,” XXVI sq.

HENNING HUFNAGEL

Bruno's *Cabala*: Satire of Knowledge and
the Uses of the Dialogue Form

SAULINO: [...] Or credo che passerà l'occasione de far molti altri ragionamenti sopra la cabala del detto cavallo. Perché qualmente veggio, l'ordine de l'universo vuole che, come questo cavallo divino nella celeste regione non si mostra se non sin all'umbilico (dove quella stella che v'è terminante, è messa in lite e questione se appartiene alla testa d'Andromeda o pur al tronco di questo egregio brutto), cossì analogicamente accade che questo cavallo descrittorio non possa venire a perfezione:

Cossì Fortuna va cangiando stile.

Ma non per ciò noi doviamo desperarci; perché, s'avverrà che questi tornino ad cominciar d'accoppiars'insieme un'altra volta, le rinchiuderò tutti tre dentro del conclave, d'onde non possano uscire sin tanto ch'abbiano spacciata la creazion d'una Cabala magna del cavallo Pegaseo. *Interim*, questi doi dialogi vagliano per una Cabala parva, tironica, isagogica, microcosmica. E per non passar ociosamente il presente tempo che mi supera da spasseggiarmi in questo atrio, voglio leggere questo dialogo che tegno in mano.

Cabala del cavallo Pegaseo, THIRD DIALOGUE.¹

ASS AND ACADEMY

Giordano Bruno's fifth and shortest dialogue—*Cabala del cavallo pegaseo con l'aggiunta del asino cillenico*—may be best understood if we begin with its end, putting the cart before the horse (or rather before the ass): The dialogue ends with the *Asino cillenico*, a short dialogue within the dialogue. In this text, an ass demands to be admitted to the Pythagorean academy. When asked why he has this strange desire—strange even for a talking ass—he replies that he wants the excellence of his philosophy recognized “a fin che non siano attesi gli miei concetti, e ponderate le mie

paroli, e riputata la mia dottrina con minor fede" (744) as if these thoughts had been professed by a human being.

The president of the academy, however, rejects him. First of all, he says, a candidate has to pass many levels of study and initiation. And secondly, the academy does not accept asses at all. A rather surprising reaction for a Pythagorean, who ought to profess the doctrine of transmigrating souls, and all the more so as the president himself is of strange—not entirely human—descent: He is called "micco" ('monkey') and, who knows, perhaps he is even a donkey in disguise. Just add one letter to his name—an 'i'—, and you get the Tuscan word for ass, "miccio." Bruno's orthography is notoriously idiosyncratic; the missing letter could be easily ascribed to a caprice of his pen.

The ass tries to overcome Micco's resistance, haranguing extensively in his defense. Nevertheless, Micco remains unimpressed by his erudition and rhetorical ability. So the ass starts to attack Micco and his fellow Pythagoreans. He reproaches them for being inconsistent: on the one hand, teaching the transmigration of souls and, on the other, refusing his candidacy because he is an animal. He goes on to praise the divine wisdom, which can be learned in the academies of the asses. He even denies the human academicians the authority to judge the validity of his 'asinine' thoughts. All this is in vain: Micco does not change his mind; the dialogue reaches a dead end. Only a *deus ex machina* can resolve the situation. And indeed, the god Mercury appears, greeted by the jubilant ass, and pushes the doors of the academy wide open for him. With divine authority, Mercury appoints him as "Academico e Dogmatico generale" (750), while the bystander Micco begrudgingly accepts the god's decision.

What is the message of this fable? Apparently, it is dealing with the problem of validity and validation of claims. Bruno's short text—his *Asino cillenico del Nolano* counts no more than ten pages—thus poses a fundamental philosophical question: How are knowledge claims recognized as true? As *Cabala* only discusses flawed and false ways of cognition, this question is answered, if it is answered at all, only *ex negativo*. It, therefore, seems to hint at Bruno's next (and last) Italian dialogue, *De gli eroici furori*, in which Bruno explicitly develops an epistemology.²

Looking more closely at *Cabala*, one realizes that Bruno has specified the question. Actually, the text puts it like this: in which form does a claim have to be presented in a dialogue in order to be regarded as true? The question gets this self-reflexive spin through the structure of the text. Bruno's philosophical ass is the fictional character of a dialogue that is read within the fictional world of a second dialogue, read by a character called

Saulino. This *Asino cillenico* even has an author: none other than the “Nolano,” Bruno himself, putting the different texts into an entangled ontological hierarchy slightly reminiscent of Douglas Hofstadter’s ‘strange loops.’ Saulino begins to read the *Asino cillenico* in the third part of *Cabala* because his usual interlocutors have stood him up: they do not show up to their appointment, causing the cancellation of the last part of *Cabala* and leaving its text forever unfinished as Saulino exclaims in another paradoxically self-reflexive line. The *Asino cillenico* can nevertheless be seen as some sort of completion or at least commentary of *Cabala* as it mirrors and focuses its topics, problems and techniques. Therefore, I propose to read not only the *Asino*, but *Cabala* as a whole as a satire of knowledge and a reflection on the dialectical possibilities of the dialogue as a genre.

CABALA AS A DIALOGUE

The question about the possibility and the validity of knowledge permeates *Cabala*. For a large part, it is a parody of how knowledge is gained and transmitted. Allegedly, *Cabala* is the completion of another of Bruno’s dialogues, *Spaccio de la bestia trionfante*. It is said to complete the celestial reform begun there. In *Spaccio*, the Olympian Gods strip the constellations of the animals traditionally associated with them and install new, abstract meanings in their place. For example, the bull has to leave Taurus, with patience and tolerance taking its place. Three constellations, however, remain void. Now, *Cabala* collocates there three forms of “asinità,” i.e., ‘donkeyness’ or asininity. This alone makes it evident that *Cabala* is a satirical work. However, this satire is complex and even confusing: The text resembles quicksand, submerging every claim as soon as it is made. Scholars have used many subtle interpretative maneuvers to fix a positive theoretical meaning in the text. Some have argued that “asinità” is not only derided, but that there is also a positive, ‘ideal’ asininity; others believe “asinità” to be inextricably ambivalent, playing a heuristic role in gaining knowledge.³ Yet these are extrapolations of singular claims, claims that are also caught in *Cabala*’s mechanisms of obliteration. I would like to plead the case for taking the elusiveness and negativity of *Cabala* seriously. It may be hard to accept, but in the end, all claims made in the text seem to negate and cancel each other out.

A major role in this process belongs to the intricate tectonic structure of *Cabala*. Its fragmented text stretches over numerous different levels. The actual dialogue is preceded by the parody of an epistle, written to a

fake patron, and by an even more hilarious parody of a sermon, entitled *Declamazione al studioso, divoto e pio lettore*. Each of these paratexts is followed by a sonnet. Like *Cabala*, the *Asino cillenico*, too, is preceded by a sonnet, which produces another mirror-effect between the two dialogues. *Cabala* has three parts, with the middle part additionally divided into three sections. The third part establishes yet another level of dialogue, containing the *Asino cillenico*, as Saulino is supposed to read the text, letting the actual reader of the *Cabala* look over his shoulder. The dialectical structure of the dialogue can be described as cyclical, as thoughts and arguments usually are not brought to a close, but deferred and later repeated. The sonnet preceding the *Asino cillenico* also refers back to the *Declamazione* and some passages at the end of the text closely echo the final paragraphs of *Cabala*'s prefatory epistle.⁴ With its many different sections, paratexts, and dialogical layers, Bruno's text almost encyclopedically lumps genres together that are characterized by questionable and unstable truth values; such as the *declamatio*, a liar's tale in Lucian's manner and paradoxical encomium.

First of all, what happens in *Cabala*? At the beginning of the text, Saulino claims that Asininity is located in the constellation *Ursa Major*, right next to Truth in *Ursa Minor*, because in order to gain true knowledge, necessarily you have to be ignorant first. Saulino argues that there are three forms of heuristic ignorance. These three forms are also the topics of the latter parts of the dialogue: the Jewish Cabbala, the Christian faith, and skepticism.⁵ Saulino declares that the first two forms, in reality, are just one. However, as he subsequently nominates a forth kind of ignorance, the philosophical pseudo-knowledge of Aristotelianism,⁶ he ends up again by the magical number of three.

In the first dialogue, Saulino only elaborates on Christian epistemological humility. His efforts, however, to convince his interlocutors of Christian "asinità" are hardly crowned by success. Skepticism is discussed in the third part of the second dialogue, whereas Aristotelian pseudo-knowledge is presented in the second part of this dialogue by a new interlocutor: Onorio.

Onorio appears for the first time in the opening part of the second dialogue, claiming to have been an ass in a former life. But since then, he continues, he has been reborn as a human many times, collecting an enormous amount of experience. Onorio goes further into the topic of the transmigration of souls, a topic that is palpable again, as we have seen, in the *Asino cillenico*. He argues for the heretic thesis that the souls of humans and animals are made of the same substance and even abolishes the traditional hierarchy between instinct and intellect. So he claims that the body

is the key to intellectual capability, that human civilization is dependent on the existence of hands. Onorio, thus, turns the doctrine of the transmigration of souls, metempsychosis, into “*metamfisicosi, cioè trasformazione o transcorporazione de tutte l'anime*” (717), as his interlocutor Sebasto declares.

In the second part of the second dialogue, Onorio gives an *échantillon* of his diverse lives. He tells a stunned audience that he has been Aristotle and, as Aristotle, has not promulgated true but only false knowledge. In the third part of the dialogue, when Saulino attempts to propagate skepticism, he tries to secure Onorio's support. But Onorio does not care about Saulino's philosophy. In the end, the skeptical asinine epistemology is disproved by a *reductio ad absurdum*. Saulino had wanted his interlocutors to become similar to asses, but they finally conclude that this is impossible—that “*in nessun modo si possa inasinire*” (737). The book, however, ends on a different note. Saulino reads in the *Asino cillenico* about the ass triumphantly entering the academy: Mercury declares general asininity, calling on the ass to rule all disciplines.

THE PARATEXTS OF *CABALA*: PARADOXICAL EPIDEIXIS AS THE UNDERLYING STRUCTURE OF THE DIALOGUE

As a satire of knowledge, *Cabala* begins with a statement that turns out to be void. Bruno dedicates the text to a certain Don Sapatino, “vescovo di Casamarciiano” (675). This bishop, however, is purely imaginary: Casamarciiano, a small city near Naples—apparently chosen for its telling name—has never been a diocesan town. And the person who is presented with “cabala, teologia e filosofia” seems to be blissfully ignorant in all three of these disciplines. This makes him an ideal, because ignorant patron: “Io non so se siete teologo, o filosofo, o cabalista: ma so ben che siete tutti, se non per essenza, per partecipazione; se non in atto, in potenza; se non d'appresso, da lontano.” In short, he does not have these qualities at all: “Certo nessun potrà più espressamente che voi comprendere il tutto: perché siete fuor del tutto” (677). Bruno presents him with an ass—“vi porgo il dono d'un Asino” (677)—, an ass that stands both for the subject of the dialogue and for the dialogue itself. In the epistles of his other dialogues, Bruno explains the theoretical contents of the texts one is about to read. An extreme example is *De gli eroici furori*, where whole passages of the dialogue are cited and interpreted in the epistle (771). In *Cabala*, we only find an enumeration of what the ass-like text *could possibly be*: “non è

asino da stalla o da armento, ma di que' che possono comparir per tutto, andar per tutto, entrar per tutto, seder per tutto, comunicar, capir, consigliar, definir e far tutto" (679). This catalogue culminates in a number of rhetorical questions: If the ass is x, why shouldn't it also be y? Or z? Or n? The series could be protracted ad infinitum, but Bruno nonchalantly puts an end to these deliberations: "In conclusione (per non più rompere il capo a me et a voi) mi par che sia l'istessa anima del mondo, tutto in tutto, e tutto in qualsivoglia parte" (680)—the ass is everything, without any difference, because as *anima mundi* it is present everywhere. So, the text is at the same time "cabala, teologia e filosofia; dico una cabala di teologica filosofia, una filosofia di teologia cabalistica, una teologia di cabala filosofica, di sorte ancora che non so se queste tre cose avete o come tutto, o come parte, o come niente: ma questo so ben certo, che avete tutto del niente in parte, parte del tutto nel niente, niente de la parte in tutto" (677).

The vertiginous permutation of the three terms signals the complete arbitrariness of the concepts.⁷ Cabala, theology, and philosophy are merely colorful playing cards in the game of satire. Bruno combines and recombines them in all sorts of ways until their meaning is reduced to literally nothing. In the end, the patron is left empty-handed: If he has the 'complete nothing in one part,' or 'nothing of a part on the whole,' it is always nothing. Moreover, this patron-bishop is not any bishop. The letter addresses 'no one.' It is an empty discourse directed into the void. If the epistle is an instruction how to read *Cabala*, there is only one conclusion: Bruno does not want to develop positive theoretical positions in this dialogue.

The many divergent qualities attributed to the ass in the epistle are reduced to a specific one in the following two paratexts: The ass is identified as the symbol of the epistemological humility of Christianity, especially Protestantism, condemning "la gonfia, superba e temeraria scienza secolare" (689–90) and propagating the 'poverty in spirit' (692). Accordingly, the first sonnet praises "sant'asinità, sant'ignoranza / santa stolticia e pia divozione / qual sola puoi far l'anime sì buone / ch'uman ingegno e studio non l'avanza" (683). At the same time, however, this attitude is satirically disproved by the genre frame of the texts. The two sonnets are *sonetti caudati*, trailing the 'tail' of a third tercet after the regular two. This type of sonnet is a sub-genre specific for burlesque poetry, as written by Berni or Aretino, for instance. The statements made within this genre are turned upside down by the genre. So, *Un molto pio sonetto circa la significazione de l'asina e pulledro* (697) only seems to be a pious retelling and exegesis of a passage of the scripture (Matthew 21, 2–3), with its ironic

character being palpable already in the title. Equally, the *Sonetto in lode de l'asino* is a paradoxical praise, rejecting not only scientific curiosity, but any intellectual activity and replacing it with a passive expectation of salvation:

Che vi val, curiosi, il studiare,
 voler saper quel che fa la natura,
 se gli astri son pur terra, fuoco e mare?
 La santa asinità di ciò non cura;
 ma con man gionte e 'n ginocchion vuol stare
 aspettando da Dio la sua ventura.
 Nessuna cosa dura,
 eccetto il frutto de l'eterna requie,
 la qual ne done Dio dopo l'essequie. (683)

That the generative structure underlying *Cabala* is paradoxical encomium becomes obvious at latest in the *declamatio*. At great rhetorical expense—almost every term is blown up to Ciceronian *tricola*—it praises “la pura bontade, regia sinceritade e magnifica maestade della santa ignoranza, dotta pecoragine e divina asinitade” (685), amplifying ad nauseam the message of the preceding sonnet. Bruno cites a whole range of texts which ironically praise the ass, thus collocating the *declamatio* explicitly in the tradition of paradoxical epideixis. So he says:

Or chi terrà il mondo che non pensi ch'io faccia il simile? Chi potrà donar freno alle lingue che non mi mettano nel medesimo predicamento [...]? Chi potrà contenerli che non credano, affermino e confermino che io non intendo vera e seriamente lodar l'asino et asinitade [...]? (686)

Seemingly rejecting this tradition, he precisely includes his text in its ranks; after all, denying irony can be regarded as one of the most obvious signals of irony.⁸ The apostrophe to the reader has to be understood analogously: It is up to him/her to decide “se gli concetti semplici, le sentenze enunciative e gli discorsi sillogistici ch'apporto in favor di questo sacro, impolluto e santo animale, son puri, vere e dimostrativi; o pur son finti, impossibili et apparenti” (686). Therefore, the praise of the ass is no critique of science or rational inquisitiveness. It rather calls into question the Christian doctrine, associated over and over again with the ass: While other paradox encomia use the Bible or Christian authorities only as the

source of the (pretended) justifications for their paradox claim, in *Cabala*, the epistemology of the ass is explicitly identified—and derided—as Christian.⁹

SAULINO DISCREDITED: THE PHILOSOPHY OF THE ASS

The first dialogue initially continues the “*declamazione*.” Saulino argues that knowledge is to be gained through ignorance. In a dialogue, however, the techniques to validate or invalidate positions are different from those of the *declamatio*. I would argue that they chiefly include the following two: the way the plot unfolds and the interaction between the characters. In *Cabala*, the ways things are presented contradict what is presented; the *discours* of the dialogue disproves its *histoire*, invalidating the claims made within this *histoire*. Saulino fails over and over again to convince his interlocutors—failures that make it obvious that he is wrong. Finally, some positions are even presented as logic absurdities, the product of fallacious syllogisms.

Collocating “*asinità*” at the void constellations, Saulino seems to complete the celestial reform of *Spaccio*. In fact, he turns it upside down; the mere course of events makes this obvious. *Cabala*, according to Saulino, is a completion. The text, however, is full of procrastination and incompleteness. Often topics are raised but scarcely discussed, without reaching a conclusion. Sometimes Saulino even does not manage to present his position the way he plans and announces to do. And, as I have already mentioned, the third dialogue is cancelled because Saulino’s audience just does not show up. His positions could not be discredited more drastically.

The configuration of the characters, too, seems to disprove Saulino. In *Spaccio*, Sofia, the personification of earthly wisdom, is Saulino’s interlocutor. She reports and explains the decisions of the Olympian Gods, while Saulino mainly listens. In *Cabala*, however, Saulino speaks out, while Sofia is absent: Wisdom has deserted Saulino—and he errs. He distorts Sofia’s teaching all the more as he has forgotten—by his own account—two thirds of what she has told him.¹⁰ If once in a while Saulino succeeds in elaborating, his remarks are discredited by the discrepancy between his efforts and their effect. For example, in the first dialogue, he begins by explaining the cabbalistic doctrine, somehow associated with the ass, of the ten “*sephiroth*,” the ten divine forces that link God with the world (701–703). As this revelation of arcane knowledge does not have an effect on his audience, Saulino starts over and tries to prove the wisdom of the ass based on the authority of the scripture, equally with limited success

(705). Finally, he analyses the philosophical concept of truth and proposes a typology of the modes of cognition (706–10).

Saulino differentiates three ways to access true knowledge through ignorance: Firstly, one can simply negate knowledge. Secondly, one can presume to know something, holding, however, only false assumptions. Thirdly, one can know not to know anything. Saulino makes a difference between the philosophical and the religious know-nothings, between the skeptics and those who believe in revelation, i.e., the Christians: They are the “veramente dotti, per ridursi a quella gloriosissima asinitade e pazzia” (709). Whereas the holders of pseudo-knowledge are later identified as Aristotelians, Saulino calls Cabbalists those who negate knowledge. He puts them into the same group as the Christians, as both deny the possibility of worldly knowledge (711). Thus blurring the lines between his own categories, he jeopardizes the elaborate distinction he has so painstakingly developed and damages the validity of his expositions.

With these three ways to gain knowledge through ignorance, Saulino has named the subjects of the different parts of *Cabala*. Furthermore, they can be identified with the three attempts Saulino makes in the first dialogue to justify his asinine doctrine: first of all cabalistically (with the “sephiroth”), then in a Christian-theological way (citing from the Bible), and finally philosophically (by his analysis of the concept of truth). Especially in this last attempt, Saulino disproves himself in a subtle way: In his typology of ignorance, philosophy is associated chiefly with pseudo-knowledge, a form of knowledge Saulino denounces both as false and morally bad, as “ignoranza di prava disposizione” (708). Saulino's self-assured explanations about different forms of cognition thus perfectly illustrate his own definition of the pseudo-sages who believe to know all the more the less they really know: “quanto men sanno e sono imbibiti de false informazioni, tanto più pensano di sapere” (708).

I have said Saulino's efforts and their effects on his interlocutors were out of proportion and, therefore, discredited his display of erudition. Take his remarks about the “sephiroth,” for instance. First Saulino lists the ten sephiroth with their Hebrew names and their Italian translations. Then, he draws a parallel between the sephiroth and a certain order of ten intelligences, which, according to Saulino, is analogous to the angelical hierarchy. The orders of the angels are, in turn, said to correspond to the ten spheres of the *mundus sensibilis*: Earth, Moon, Sun, the planets, the fixed stars and the divine beyond them.¹¹ Additionally, Saulino links them to ten ‘movers’ or ‘souls’ with euphonious Hebrew names. He even succeeds in attaching them to the four elements, albeit only syntactically, by a rela-

tive clause. The only conclusion he draws, all too banally, after these lengthy preparations is that, according to cabalistic revelations, the ass is a symbol of wisdom. “Parturient montes...” (703) is, therefore, the succinct response of his interlocutor Coribante. He cites the first part of a famous verse of Horace’s *Ars poetica*, which has become proverbial; so proverbial that Coribante does not even need to cite it in full: “Parturient montes, nascetur ridiculus mus” (V. 139). The meaning of his commentary is obvious: The disparity between the effort and the result of the conclusion disqualifies Saulino’s exposition.

Saulino’s analysis of the concept of truth follows the same pattern and is similarly discredited. It involves many levels of analogy, referring occasionally to the sephiroth, only to conclude that truth and ignorance are somehow closely related. According to Saulino, absolute truth is symbolized “per un de’ Sephiroth” (707), but he does not specify by which of the ten exactly, although a couple of pages earlier, he had meticulously differentiated between them. Obviously, it does not matter.

This sheds some light on the primary function of the references to the cabbala in Bruno’s dialogue. As Saulino’s references are completely arbitrary, they are ironically stripped of their meaning; only their dialectical mechanism remains. As arcane knowledge, the cabbala demonstrates authority, and citations from the cabbala try to extend such authority. In Bruno’s text, the cabbala thus serves as example of a certain mode of argumentation, which, as we have seen with Coribante, is dismissed in the interaction between the characters. This auto-reflexivity becomes more apparent in a parallel passage in the second dialogue. Here, Onorio lampoons those modes of writing that suggest esoteric wisdom through obscurity and he derides their readers:

Se si trova in proposito di lezzion di qualche libro composto da qualche energumeno o ispiritato, dove non è espresso e d’onde non si può premere più sentimento che possa ritrovarsi in un spirito cavallino, all’ora per mostrar d’aver dato sul chiodo esclamarà: ‘*O magnum misterium.*’ (727)

Up to the Latin phrase that crowns the reader’s reaction, the passage reproduces exactly Saulino’s cabalistic lecture and Coribante’s commentary, only satirically inverted. Sebasto seems to recognize it immediately, as he cuts Onorio short: “Non più, di grazia, di questi propositi delli quali siamo pur troppo informati” (727).

Similar lengthy differentiations that remain inconclusive like those about the sephiroth can be found in the third section of the second dialogue. Here, Saulino tries to explain the distinctions between the skeptical schools of "Efettici," "Pirroni," and others, but is not able to convince his interlocutors. The only thing he provokes is vehement protest. Already in the first dialogue, Saulino's long erudite exposition on cabalism is followed by detailed objections from Sebasto—Sebasto who initially seemed to exemplify the open-minded 'everyman' type of character, who rather listens and asks questions instead of raising doubts. Sebasto and even the pedant Coribante keep interrupting Saulino's remarks about the skeptics, caustically raising objections and confronting him with counter-explanations. In the end, Saulino loses his temper and exclaims: "Lasciatemi com-pire" (732)—"Let me finish!" The dialogue seems to have reached a similar (yet inverse) dead-end as the *Asino cillenico*: Even if the positions of Saulino and his interlocutors remain incompatible, Saulino tries over and over again to convince them of the advantages of being ass-like. The dialogue continually shows the breakdown of a process of persuasion.

Thus, *Cabala* does exactly the opposite of what other of Bruno's dialogues do. Both in the *Cena de le ceneri* and in *De l'infinito, universo e mondi*, the characters that the readers are supposed to identify with are going through learning processes; in the beginning, they at least have doubts about the "filosofia nolana"—if they do not reject it altogether. In the course of the dialogue, however, they become convinced and their 'conversion' shows the validity of the Nolan's thoughts. As Saulino so blatantly fails to proselytize his interlocutors, the course of events in *Cabala* makes it evident that his positions are false.

Nevertheless, Saulino immediately tries to turn Sebasto's objections upside down: "Se questo che dici impropertivamente et in còlera, lo dicessi da buon senno et assertivamente, direi che la vostra deduzione è eccellentissima et egregiamente divina" (734). I would extrapolate his statement to the dialogue as a whole and read it in a poetological sense. In this case, Saulino talks about the paradoxical structure of *Cabala*, in which something is praised just in order for it to be discredited. Saulino says: If Sebasto had spoken without anger, i.e., without satirical intention, then he would be right—but it is Saulino who is talking, the one whose position is paradoxically twisted, as it reproduces the *declamatio*. So, indirectly, Sebasto is proved to be right.

Saulino's central claim—that knowledge is to be gained by ignorance—is finally presented as a false conclusion and logical absurdity. For example,

in the third part of the second dialogue, he says: “Atteso che l’umano intelletto ha qualch’accesso a la verità; il quale accesso se non è per la scienza e cognizione, necessariamente bisogna che sia per l’ignoranza et asinità” (730). This, however, is obviously a fallacious argument much in the same way as “If I aim at something and do not hit it, I must hit it if I don’t aim at it.”

Saulino also struggles to convince his interlocutors of skepticism. They complain about its inherent contradiction trying to communicate the insight that insight is not possible. So Sebasto says:

Dumque se tal opinione è vera, è vera per dimostrazione; la dimostrazione è un sillogismo scientifico; dunque secondo quei medesimi che negano la scienza et apprension di verità, viene ad esser posta l’apprension di verità e discorso scienziiale: e consequentemente sono dal suo medesimo senso e paroli redarguiti. Giongo a questo che se non si sa verità alcuna, essi medesimi non sanno quel che dicono, e non possono esser certi se parlano o ragghiano, se son omini o asini. (731)

If they cannot know anything for sure, Sebasto argues, the skeptics cannot even know if they are men or asses. Saulino promises him to resolve this logical problem, but he does not get back to it in the further course of their colloquium (731). In fact, the second dialogue ends on a similar argument, only that there Sebasto applies the antinomies of skepticism directly to the ass. Sebasto’s speech culminates in the conclusion that it is impossible to learn how to become ass-like: “si può vedere che in nessun modo si possa inasinire. Dumque dell’asinitade non può essere apprension alcuna, come non è de arti e de scienze” (737). So the imperative of the “declamazione,” “Forzatevi, forzatevi dunque ad esser asini” (695), is revoked and reversed.

SQUARING THE PARADOX: ONORIO

So far, despite my warnings, it does not seem too complicated to decode a message in the text, once you have taken into account the paradoxical, twisted structure of *Cabala*: it is one of rejection and refutation, as cabalistic and Christian epistemology are violently denounced. Yet, in the second dialogue still another character makes his appearance, and he makes it all the more complicated to fix a meaning of the text: Onorio. Onorio is invited to participate in the colloquium on asininity, as he claims to have

been in a former life an ass himself. Intellectually, Onorio seems to be Saulino's antagonist. If Saulino calls for stopping the quest for truth, Onorio unremittingly seems to strive for knowledge.

After Saulino's expositions about cabalistic and Christian ignorance, it is Onorio's role to present a third form of ignorance, namely pseudo-knowledge. Onorio tells his interlocutors a breathtaking story: He remembers having been Aristotle and confesses that, as Aristotle, he has taught pure nonsense about cosmology:

[...] entrai in presunzione d'esser filosofo naturale [...]. Mi dissi principe de' Peripatetici, insegnai in Atene nel sottoportico Liceo: dove secondo il lume e per dir il vero secondo le tenebre che regnavano in me, intesi et insegnai perversamente circa la natura de li principii e sustanza delle cose, delirai più che l'istessa delirazione circa l'essenza de l'anima, nulla possevi comprendere per dritto circa la natura del moto e de l'universo; et in conclusione son fatto quello per cui la scienza naturale e divina è stinta nel bassissimo della ruota [...]. (724)

Vanity and the will to power drove him to write in a vague and obscure style, simulating philosophical depth. This is a motif Bruno has borrowed from one of Lucian's dialogues, *The Cock or The Dream of Micylus* (*Gallus sive somnium*, in Erasmus' translation). Here, a cock tells its bewildered owner that once it was Pythagoras and made up nonsensical rules of conduct in order to be regarded as a profound thinker. In Lucian's text, this satire of the philosopher is just a side theme. In *Cabala*, however, Onorio's story is directly connected with the main topic of the dialogue. Even more, it introduces a new technique of argument into *Cabala*. Onorio obviously does not debate. He does not formulate premises in order to draw conclusions. His *modus operandi* is not inferential, but narrative. Onorio tells what has happened to him. He validates or discredits the positions he professes directly, by his person and his ethos.

Thus, with a dialogue character validating certain positions already by the way he acts and talks on the scene of the text, the literary structure of *Cabala* takes on the weight of an argument; the plot is functionalized for Bruno's argumentation. This mode of argumentation may be described as 'performative': Throughout *Cabala*, claims and positions are less discursively justified by inference than they are made evident, shown, 'performed' as superior.¹² This seems to be exactly the answer to the question

raised in the *Asino cillenico* as to how a claim must be presented in a dialogue in order to be regarded as valid. Moreover, it seems to reproduce its allegory. The ass, too, could not convince his interlocutor by means of discursive argument. His position was declared the right and true one only when Mercury appeared; only Mercury's epiphany made it evident.

Especially in his first three dialogues, Bruno develops such 'Mercuries': figures of higher authority who directly validate positions. Bruno even conceptualizes them as 'mercurii' in his *De umbris idearum*, as superhuman messengers of truth that divine providence regularly sends down on earth.¹³ For example, the whole *Cena de le ceneri* seems to culminate in the construction of Bruno's textual *persona*, the Nolano, as such a Mercury who has come to spread the new Copernican cosmology.¹⁴

Still, how does Onorio complicate *Cabala*? Even if he acts like Bruno's *personae* in the other dialogues, he is no unambiguous character. He still is something of the ass he once was. So, in one passage (737), the former ass himself pleads against asininity and its forms of cognition, introducing a classical paradox into *Cabala*, the paradox of Epimenides the Cretan who said that all Cretans were liars: Onorio, who seems to expose Saulino's false teachings in a particularly vivid way, at the same time discredits himself because he is an ass. Or Saulino's asinine philosophy has a true core and Onorio, as such an ass, is wise. Yet, in this case, he cannot argue against Saulino.

ENDING IN IGNORANCE

There are even more incongruities to Onorio. Whereas Saulino suggests that you have to become an ass in order to gain knowledge, Onorio is able to accumulate experiences exactly because he has been transformed from ass into man. Yet, Onorio's knowledge is often mere pseudo-knowledge, like that of his Aristotle. At best, it has the lesser and relative truth value of opinions, in accordance with the maxim Onorio taught when he was Xenophanes, i.e., that there is no other knowledge than opinion (734). The *opinionones* Onorio collects over the course of his diverse lives are put in a kind of 'celestial library' (723). This library clearly parodies the vision of the ideas by the bodiless soul, as Plato describes it in his *Phaidros* (248a-d). Onorio does not contemplate the absolute, lying beyond the world of appearances, and takes its reflections with him down to earth. Quite the contrary: Onorio carries earthly things into the heavens—with the devastating

consequence that even the celestial knowledge is made up from nothing else but earthly *opiniones*. Onorio ascends to the sky as the flying ass, the “Asino volante” (716), thus the caricature of Pegasus, and, accordingly, produces the caricature of absolute knowledge. Only in the next dialogue, *De gli eroici furori*, does it become clear how Bruno thinks the real ascent to the absolute.

Nevertheless, Onorio claims that the repeated return of his soul to the absolute and his various reincarnations have provided him with a secure sense of truth and falsehood.¹⁵ However, he does not care to use this sense. He tells Sebasto that he should listen to him just for fun: “Se dunque non m’ascolti sotto specie di dottrina e disciplina, ascoltami per spasso” (722). Accordingly, when asked about the validity of skepticism, he says that he does not have fun in dissecting lines of reasoning. In the end, he declares, persuasiveness is a matter of taste and there is no accounting for tastes: “Dico che in esaminar cotai discorsi non fia mistero d’intrattenerci: basta che dico esser buoni, come certe erbe son buone per certi gusti” (737). His apparent pursuit of truth and knowledge, thus, results in indifference to truth.

So, the text about knowledge gained from ignorance ends in ignorance, ends without positive theoretical findings. In the *Asino cillenico* this negativity reaches its maximum. At the end of the dispute between the two asses, the true and the disguised one, Mercury proclaims the epoch of general asininity. Mercury tells the ass: “domina a tutti, sii tutto” (750). If the ass is everything, all distinctions are abolished and cognition, which is necessarily based on differentiation, is made impossible.

If something is to be learned from *Cabala*, however, it is how the literary form of the dialogue can acquire the value of an argument. The text presents these modes of argumentation, so to speak, in the experimental space of negativity. Bruno, obviously conscious of the paradoxes his dialogue produces, does not formulate positive theoretical findings. He only shows the effects of false forms of knowledge and cognition. As I have shown, the transmission of alleged knowledge between the interlocutors collapses continually. Add to this the fact that *Cabala* is a highly self-referential dialogue and it becomes clear that, in his text, Bruno reflects the dialectical possibilities of the dialogue as a genre. He does so before he sets out for his most ambitious task—to enact the process of cognition of the absolute in his last dialogue, the *Eroici furori*.¹⁶

BIBLIOGRAPHY

Primary sources

- Bruno, G. *Jordani Bruni Nolani Opera latine conscripta*, vol. II, 1. Eds. V. Imbriani and C. M. Tallarigo. Naples: Morano, 1886. Reprint Stuttgart/Bad Canstatt: Frommann, 1961.
- . *Dialoghi filosofici italiani*. Ed. M. Ciliberto. Milan: Mondadori, 2000.
- . *The Cabala of Pegasus*. Eds. and trans. S. L. Sondergard and M. U. Sowell. New Haven: Yale University Press, 2002.

Secondary sources

- Badaloni, N. "Introduction." In G. Bruno, *Œuvres complètes*, vol. 6, *Cabale du cheval pégaséen*. Ed. G. Aquilecchia. Trans. T. Dagron, IX–LVIII. Paris: Les Belles Lettres, 1994.
- Ciliberto, M. "Asini e pedanti." *Rinascimento* 26 (1984): 81–121.
- . "Proposte per Bruno: sui rapporti tra 'Cabala' e 'Spaccio'." In *Filosofia e storia della cultura. Studi in onore di Fulvio Tessitore*, vol. 1, *Dall'antico al moderno*. Eds. M. Martirano and E. Massimilla, 287–303. Naples: Morano, 1997.
- De Léon-Jones, K. S. *Giordano Bruno and the Kabbalah: prophets, magicians, and rabbis*. New Haven: Yale University Press, 1997.
- Hartung, S. "Rehierarchisierungen und Systemverschiebungen in der paradoxen Lob- und Tadelliteratur der Renaissance." In *Varietas und Ordo. Zur Rehierarchisierung der Diskurse in Renaissance und Barock (Italien, Frankreich, Spanien)*. Eds. M. Föcking and B. Huß, 91–114. Stuttgart: Steiner, 2003.
- Häsner, B. "Der Dialog: Strukturelemente einer Gattung zwischen Fiktion und Theoriebildung." In *Poetik des Dialogs. Aktuelle Theorie und rinascimentales Selbstverständnis*. Ed. K. W. Hempfer, 13–65. Stuttgart: Steiner, 2004.
- Hufnagel, H. *Ein Stück von jeder Wissenschaft. Gattungshybridisierung, Argumentation und Erkenntnis in Giordano Brunos italienischen Dialogen*. Stuttgart: Steiner, 2009.
- Ordine, N. *La cabala dell'asino. Asinità e conoscenza in Giordano Bruno*. Naples: Liguori, 1987.
- Oster, A. "Divina Asinitade. Giordano Brunos Allegorien der Eselei." *Zeitschrift für Ästhetik und allgemeine Kunstwissenschaft* 51 (2007): 13–36.
- Ricci, S. "Lo 'spaccio' delle Cabala: Bruno e il giudeocristianesimo." In *La filosofia di Giordano Bruno. Problemi ermeneutici e storiografici*. Ed. E. Canone, 217–61. Florence: Olschki, 2003.
- Schneider, S. "Der chiffrierte Text der Sterne. Zur Wahrnehmung, Bedeutung und Poetisierung des Himmels in Giordano Brunos *Cabala del cavallo pegaseo con l'aggiunta dell'asino cillenico*." *Zeitschrift für Ästhetik und allgemeine Kunstwissenschaft* 51 (2007): 57–77.
- Yates, F. A. *Giordano Bruno and the Hermetic Tradition*. 1st edition, 1964. Chicago: University of Chicago Press, 1991.

NOTES

- 1 Bruno, *Dialoghi filosofici italiani*, 739–40. In the course of this essay I will refer to *Cabala* and Bruno's other dialogues in Ciliberto's *Meridiani* edition by page number parenthetically in the text: "Now I believe the time for constructing other arguments about the cabala of the aforementioned horse is passing. For as I see it, the order of the universe decrees that as this divine horse in the celestial region cannot show itself except to the navel (where the star that terminates there is placed in dispute and in question whether it belongs to the head of Andromeda or simply to the trunk of this splendid brute), thus analogically it happens that this descriptive horse cannot achieve perfection:

So goes Fortune, changing style.

But we must not despair due to this; since, if it chances that the others return to meet together another time, I shall shut up all three of them inside the conclave, from whence they cannot get out until they have spun the creation of an illustrious Cabala of Pegasus the horse. Interim, these two dialogues are selected for a small, preparatory, introductory, microcosmic Cabala. And so as not to let the present time get the better of me by passing it foolishly in strolling through this atrium, I wish to read this dialogue that I have in hand." Bruno, *The Cabala of Pegasus*, 80–81 (text slightly altered).
- 2 Such a reading of the *Furori* is developed in Hufnagel, *Ein Stück von jeder Wissenschaft*, 251–96.
- 3 The first position is taken most prominently in Ordine, *Asinità e conoscenza*. Cf. also Oster, "Divina asinitade," 34, Badaloni, "Introduction," and De Léon-Jones, *Bruno and the Kabbalah*, 27. A scholar who ascribes an exclusively negative value to "asinità" is Michele Ciliberto (cf. Ciliberto, "Asini e pedanti"). Ciliberto interprets *Cabala* mainly in historical terms, as a radicalisation of *Spaccio de la bestia trionfante*: After *Spaccio*'s message of religious *renovatio* and rejection of Protestantism has failed to reach an audience in Britain, Bruno wrote, according to Ciliberto, a radical critique of Christianity as a whole (cf. Ciliberto, "Proposte per Bruno"). Frances A. Yates, instead, reads *Cabala* as a continuation of *Spaccio*: To *Spaccio*'s hermetic-Egyptian program of religious tolerance would be added a Christian-cabalistic nuance (cf. Yates, *Hermetic Tradition*, 257–74). Yates' interpretation, however, is definitely undermined by the fact that it turns a blind eye to the satirical and comical aspects of the text. Badaloni's reading, too, does not take into account the satirical character of *Cabala*.
- 4 In the epistle Bruno characterizes the ass as *anima mundi*: "mi par che sia l'istessa anima del mondo, tutto in tutto, e tutto in qualsivoglia parte" (680). When Mercury establishes the ass as "Academico e Dogmatico generale," he tells him: "identificati con tutti, domina a tutti, sii tutto" (750).
- 5 Saulino says: "Quello ch'unisce l'intelletto nostro, il qual è nella sofia, alla verità, la quale è l'oggetto intelligibile, è una specie d'ignoranza, secondo gli Cabalisti e certi mistici teologi; un'altra specie secondo gli Pirroniani, Efettici et altri simili; un'altra secondo teologi cristiani" (709).
- 6 As Saulino, Sebasto, too, talks explicitly of Aristotelianism as pseudo-knowledge, as "suppositi filosofici" (729).

- 7 Frances A. Yates, however, does not seem to note the comical character of the permutation, similar to Karen de Léon-Jones (see de Léon-Jones, *Bruno and the Kabbalah*, 5, 24), as she calls the conceptual leapfrogging “Bruno’s own definition of his new ‘cabala.’” Yates, *Hermetic Tradition*, 262.
- 8 In the same way Francesco Berni, an author Bruno often cites in his dialogues, repudiates the ironic character of his satirical poem *In laude d’Aristotele* referring to Erasmus’s *Praise of Folly*. Cf. Hartung, “Rehierarchisierungen,” 103.
- 9 Ibid., 111. According to Hartung, the function of paradoxical epideixis is to establish an experimental ground where ethical norms can be playfully questioned and redefined. Bruno adds to the playfulness of this discourse a clearly aggressive note.
- 10 When Sebasto asks Saulino if he can elaborate on the collocation of “asinità” at three points of the sky, Saulino answers: “Non per ora, se voi non siete pronto a donarmi occasione di chiarirvi di più punti circa esse [le sedie celesti] col dimandarmi e destarmi la memoria, la quale non può avermi suggerito la terza parte de notabili propositi degni di considerazione.” (699).
- 11 Reintroducing the Ptolemaic spheres, Saulino obviously rejects the Copernican astronomy, the very centerpiece of Bruno’s cosmology, vehemently put forward in his first three dialogues, the *Cena de le ceneri*, *De la causa* and *De l’infinito*. Thus, intertextually, Saulino is shown as an untrustworthy character, as Steffen Schneider has convincingly argued (see Schneider, “Der chiffrierte Text der Sterne,” 70–71). In a similar way, Saverio Ricci has written that the praise of *Cabala* must be ironical, as *Cabala* is linked to the geocentric cosmology (see Ricci, “Lo ‘spaccio’ della Cabala,” 226).
- 12 For a characterization of the dialogue as a genre with ‘performative’ qualities in this sense cf. Häsner, “Der Dialog.” For a short English summary of Häsner’s essay, see Annick Paternoster’s review in *Modern Language Review* 101, no. 3 (July 2006): 812–13.
- 13 Bruno, *Opera latine conscripta* II, 1, 9.
- 14 Cf. Hufnagel, *Ein Stück von jeder Wissenschaft*, 69–93.
- 15 Onorio says: „vegno ornato e cinto de mia biblioteca, portando non solamente la memoria delle specie opinabili, sofistiche, apparenti, probabili e dimostrative, ma et oltre, il giudicio distintivo di quelle che son vere da l’altre che son false“ (728).
- 16 This essay is a shorter English version of chapter 7 of my book *Ein Stück von jeder Wissenschaft*.

PART 4

Reflections of an Intellectual Burning:
Bruno's Reception and
Literary Afterlife

WILHELM SCHMIDT-BIGGEMANN
The Dialectic of the Absolute Beginning.
On a Copper Engraving in Heinrich Khunrath's
Amphitheatrum Sapientiae Aeternae

DICSONO: [...] Ecco dunque che della divina sustanza, sì per essere infinita, sì per essere lontanissima da quelli effetti, che sono l'ultimo termine del corso della nostra discorsiva facultade, non possiamo conoscer nulla, se non per modo di vestigio come dicono i Platonici, di remoto effetto come dicono i Peripatetici, di indumenti come dicono i Cabalisti, di spalli o posteriori come dicono i Talmutisti, di spechio, ombra et enigma come dicono gli Apocaliptici.

De la causa, SECOND DIALOGUE¹

FIRST CAUSE IN GIORDANO BRUNO AND HEINRICH KHUNRATH

Bruno's *De la Causa* is, in general terms, an explication of *Liber de Causis*, influenced by Proclus, in which the question about the first cause is answered by maintaining that the first cause is principally unknowable, since a cause is only conceivable as a cause in contrast to its effects. Since our thinking itself is dependent upon the first cause, we ourselves can only conceive of ourselves in this secondary position and are accordingly unable to grasp the first cause in itself. As Bruno expresses this fact, we can gain "no other knowledge from the first principal and from the first cause other than in the less effective manner which consists in knowing its traces, provided that the whole springs from its will and its goodness."²

This means that one does not know the first cause, because it conceals itself as principle behind its difference. "To know the universe accordingly means, therefore, to know as it were nothing of that which concerns being and the substance of the first principal, for it is a knowing of the accidents of accidents."³ Thus, one cannot principally know the first substance. "Therefore, it is clear we can know absolutely nothing whatsoever about the divine substance—be it infinite; be it the furthest from the effects which, for their part, constitute the most extreme possibility of our discursive cog-

nitive faculty—apart from one way which the Platonic thinkers call *trace*, the Peripatetics *removed effect*, the Kabbalists *husk*, the Talmudists *backwards view* or *behind view*, the Apocalyptics *mirror*, *shadow*, or *puzzle*.”⁴

This theory of the first cause is represented by Khunrath in a fantastic, metaphysical image. As distinguished from Bruno’s metaphysics of substance, Khunrath delineates a Christian interpretation of this first reason; and yet, at the same time, a curious dialectic reveals itself here. Imagery is always spatially extended; and if it portrays this extension with spiritual symbols, then one might ask whether the outer side of the first cause does not already contain, as a spiritual process, extension; and whether there is such a thing as spiritual space and a corresponding spiritual extension. (An example of this imaginary extension is geometry, the figures of which have to be fundamentally extended, without being spatial in a material sense.) With Bruno, the first emanation of the One is space, which is indeterminate between extension and materiality. This space, as the Second after the absolute beginning—i.e., as the first externalization of the divine beginning—has systematically the same position as that of the inner Trinitarian Christ in Christian theology, which, in turn, is also the logos of creation (Schöpfungslogos). With Bruno, this logos manifests itself in the extension and only in the extension—i.e., in Christian-dogmatic terms, the Christologization of space—and this corresponds to that which later came to be known as Pantheism. The essence of Bruno’s heresy lies in his claim that there is no externalization of God apart from that of the emergence of space. Bruno writes, “There is a kind of form, the first to form itself, to extend itself and dependent [upon the first cause]. Because it forms the whole through and through, it is in everything; because it extends to everything, it mediates the perfection of the whole with the individual parts; because it is independent and does not have any activity of its own, it is able to convey the activity of the whole and similarly the name and the being of the whole to the parts. This first form is the material form—like, for example, that of fire; for each part of the fire warms, is called fire, and is fire.”⁵

In the year 1560, Heinrich Khunrath was born in Leipzig. He died in 1605 in Leipzig or Dresden.⁶ In 1588, he became a doctor of medicine in Basel. He was associated briefly with the close circle of the Moravian magnate Wilhelm von Rosenberg (1591), in which John Dee also moved. He became acquainted with John Dee in Bremen in 1589 and with Johann Grasse in Hamburg in 1596.⁷ He corresponded with Johann Arndt, and Graf Albrecht VII von Schwarzburg Rudolstadt was one his clients. Khunrath’s most well-known work is the *Amphitheatrum sapientiae aeternae* (no place given, 1595; second edition Hanau, 1609), published by Erasmus Wolfart⁸ with

very famous copper engravings⁹ annotated by Johann Arndt amongst others.¹⁰ Erasmus Wolfart was seemingly not satisfied with the result, for he placates the reader right at the beginning. “Si in multis non satisfactum est omnibus, illi et magnitudinem rei perpendant et meliora his faciant. [If many are not pleased by it, then that is owing to the size of the object, and they should try to do it better themselves.]”¹¹

THE AMPHITHEATRUM SAPIENTIAE AETERNAE

The *Amphitheatrum*, in which, to my knowledge, the term Christian Kabbalah crops up for the first time,¹² appeared in two prints, in 1595 and 1609. It has two parts: one comprised of pictures, the other text. The textual part contains aphorisms—in the first print, there are 306; in the second print, there are 365. The aphorisms are compiled in two Latin editions from the biblical-apocryphal Book of Wisdom and the *Sapientia Salomonis*. They were taken partly from the Vulgate, and partly from the translation of Santes Pagnini (1470–1536, a first Latin translation of the Hebrew Bible published in Lyon 1528). These 365 aphorisms are individually annotated in the second print, according to seven spiritual steps of perfection. The pictorial part, which was originally conceived independently of the textual one, consists of nine engravings, all of which were conceived by Khunrath. The first print from 1595 had four engravings portraying the Empyrean, the cosmogony, the philosopher’s stone, and the oratorium/laboratorium of the human alchemist. These four ‘theosophical’ engravings are also annotated in a text in the second print (185–214). Khunrath himself had also created the five engravings for the second print, but he died whilst preparing the second print and was thus unable to annotate these new engravings. The publisher, Erasmus Wolfart, printed the five new engravings in the second print without annotation.

In all, we are dealing here with are nine engravings:

1. Theogony-Empyrean. Here, the Kabbalistic foundation of all being, both the divine and the creatural, is symbolically depicted. This plate will be examined in detail in the following.
2. Cosmogony. The plate shows symbolically how the animate world soul ideally constitutes the cosmos. At issue here is the life and salvation process of the world in its entirety, according to its original paradisiacal destiny.

3. The Philosopher's Stone. The theme of this plate is the sublunary alchemical world. Here, the information process of the elementary substance is symbolically represented by the spiritual, predetermined form.
4. The Oratorium/Laboratorium shows the alchemist as microcosm, participating in the work of the salvation and spiritualization of the world.
5. Crystal and Seal. The plate portrays the alchemist in the battle against the calumniators of the true alchemy.
6. Citadel of Alchemy. This is a stylized star-shaped fortress with seven outworks within an ideal landscape. The symbolism of this plate confronts the spiritualized, wholly hermetic, and Christologically-oriented alchemy with the 'external' gold-making.
7. Gymnasium Naturae. The plate shows the internal composition of nature, which is regarded as a way to true wisdom, upon which the soul becomes cognizant of its divine nature.
8. Tabula Smaragdina Hermetis. This plate contains a text from the *Corpus Hermeticum*, which is known as "Hermes' emerald plate"¹³ and describes nature as a chemical process in the symbolism of a volcano.
9. Porta Sapientiae Aeternae.¹⁴ The picture shows, in an ideal landscape, a hill with a grotto revealing a thoroughfare into light. It is the destination of the spiritual path which the alchemist has traveled whilst searching for the secrets of nature.¹⁵

THEOSOPHICAL SCIENCE AND KABBALAH

Khunrath presents his theosophically-founded concept of science in detail in the following aphoristic explanations¹⁶:

"THEOSOPHY is the Catholic theology of the Trinity—i.e., biblical, macro- and microcosmical—the miracle-working voice of the wonderful JEHOVA, THAT IS GOD IN EVERYTHING, THROUGH EVERYTHING, FROM EVERYTHING, AND TO EVERYTHING.

"PHYSICS is the knowledge and treatment of both worlds—i.e., of the larger entire world and the smaller (with regard to body and spirit, which it has from the macrocosm). It is from tradition, nature, and art; in general, from and in the Holy Scripture; from the philosopher's stone; and, in particular, from and in the parts of both.

“PHYSICO-MEDICINE is the art of knowing the (macro- and microcosmic) great book of nature such that you can read yourself (both in the general and in the particular) in the larger world, and conversely the larger world in yourself. The goal of this is to maintain the health of the human body and to expunge diseases.

“PHYSICO-CHEMISTRY is the art of chemically dissolving physical things with the method of nature, to purify and re-unite them in the right manner, as well as all the general (macrocosmically, the philosopher’s stone; microcosmically, the parts of the human body; but also the degradation of the replication of the old figure) and the particular [things] of the lower globus.

“The MAGEIA of the most ancient wise men (whom the Persians called *Magicians*, the Greeks *Philosophers*, the Romans *Sapientes*, the Indians *Brahmans* (in Greek: *Gymnosophists*), the Egyptians *Priests* and *Merkubales*, the Hebrews *Prophets* and *Cabbalists*, the Babylonians and Assyrians *Chaldeans*, the Gauls *Druids*, *Bards* and *Semnoths*) is in general the same as that of the complete and absolute study of Hebrews of the highest Kabbalah, since it comprises the veneration of the divine, the treatment of the spiritual and the association with it, and the investigation of the natural in a pious manner; although the latter have passed far beyond the former in one and the same study owing to a friendlier leader. Still, physico-magic (the very great work Bereshith—i.e., the wisdom of nature) is the miracle-working way of engaging with natural artwork (macro- and microcosmic). Hyperphysico-magic (so-named with regard to the natural and on account of the doctrine) is the intermediate and immediate association with the good angels, God’s servants of the flames; and, in its manner, it is a kind of administration ordered by God, in sleeping as in waking.

“KABBALAH is the theosophically obtained symbolic reception¹⁷ of the divine revelation of the salvational recognition of God and the Messiah, of the separated forms, of nature (in the macro- and microcosm), and of our knowledge of it, our union and pleasure with it, as well as of the true understanding of the Holy Scripture, whether they coincide now immediately or intermediately (insofar as we can feel the divine in a human manner) both in the general and in the particular.”¹⁸

The knowledge itself is theosophically founded and interprets the physical creation according to the micro- and macrocosm. Magic provides the special knowledge of the relationship between God and the world, as well as

that of the divine spirits. Kabbalah plays a leading role within the framework of magic and is considered a paradigm of all magical knowledge. Kabbalah is firstly understood as the pious physical science and humanistic discipline revealed in the Bible as the *Physica Mosaica*—which, in watered-down form, is also accessible to the pagan wise. Secondly, it is understood as the salvation-bringing knowledge of the primordial world, which is logos-theologically associated with the Messiah. Thirdly, it is understood as knowledge of the *formae separatae* of the world soul, which is symbolized by the Hebraic letters.¹⁹

Khunrath regards the Kabbalah as the foundation of all of his science; it explains the knowledge that is accessible to us only in pictures and parables.

THE UNFURLING OF THE DIVINE FORCE: SPACE AS SYMBOL OF THE DIVINE REVELATION

For the main part, Khunrath draws his knowledge of theosophy and Kabbalah from Pistorius' collection *Ars Cabbalistica*. His actual ability and achievement rests in having visualized the fundamental aspects of Christian theosophy. He makes use of the topos of the mathematically-structured cosmic soul, which Kepler had also represented in the *Mysterium Cosmographicum*. Just as pure geometry arrives at internal evidence in the imagination, so should the symbols of the divine appear before the inner eye of pious fantasy.

Khunrath attempts to make these invisible spiritual structures of the cosmos symbolically perceivable. His symbols, which are themselves visible, refer to spiritual contents. The symbols have, by no means, just pictorial character; rather, the script is in every way equal to the image as a sign. This symbolic equality of image and script is thoroughly typical for the Kabbalistic interpretation of the theophany, which Khunrath's plates are supposed to represent. For the script—in particular, the Hebraic—is itself considered to be a visualization of the spiritual. The script's forms, which are comprised of geometrical elements, structure space into a place of spiritual presence; and whoever can read these forms, sees the divine in geometrically and symbolically structured space, just as he can hear it in the word. The crucial aspect here is the *spiritualization of space through symbolism*, which manifests itself in script and image in equal part.

Theophany also occurs at the level of the spatial ordering of the symbols; for, before God made himself appear, there was no space. Thus, the development of God beyond his internal Trinitarian self-relationship into

the external world is also the step in which internal and external become distinct from each other. The emergence of space, therefore, constitutes the revelation of divine majesty. Hence, the ordering of symbols in space represents the revelation; and it is eminently necessary, in light of the force of divine word, not to restrict oneself to pictorial symbols, but to represent the language—the logos itself—as the medium of divine self-knowledge.

The knowledge of this space through Man—who, as microcosm, is the addressee of the divine revelation and who, as creature, thus participates in it—is a curious paradox. Symbolic space is not the extra-mental real space, but rather only cognitive, unexpanded space in the imagination (*Phantasie*). Thus, Man participates in divinely conceived spiritual space through his pious imagination. He proves himself to be the instance, which, paradoxically, is the place of the unthinkable; for it is in him that the process of divine revelation shows itself as the unexpanded idea of the divine expansion.

If we consider the first four plates of the *Amphitheatrum* in this sense, we can summarize their symbolism thus:

The first plate represents the Empyrean as the place of the first revelation of the divine. Here, for the first time, the divine manifests itself in its departure from the hidden, in its Trinitarian singularity, in its names and predicates, in its powers and commandments.

The second plate depicts the first step of the process of creation, which is in the second heaven. Here the divine conception of the primordial creation is shown in its exemplary power and in its redemptive efficaciousness for the fallen world. The central symbol is the primordially hermaphroditic Adam. The realm of this process is the edge of the firmament between the Empyrean and the extended cosmos.

The third plate shows the forces of the extended, material cosmos. Here, the alchemistic drama of redemption fulfils itself. It will transform the fallen cosmos back into its divinely-preconceived primordial nature.

The fourth plate portrays the pious alchemist who participates in this process of redeeming the fallen cosmos in his oratorium/laboratorium.

THEOGONY AND EMPYREAN

In the following, only the first theosophical plate will be examined. The first plate shows the structure of the revelation of the divine within the Empyrean, the third heaven. This picture has to be read from the inner to

the outer, as an unfurling of divine glory. This divine majesty, the inner picture of divine illumination, unfurls itself in spheres. The first sphere portrays the resurrected Christ with his crucifixion wounds as shining lights.²⁰ This Christ stands as a human before the main shining light, which is an allusion to Ezekiel 2:26, where the appearance of Man before the throne of God is described. This luminous appearance of the man-god is a central motif in Christian Kabbalah from Paulus Ricius through to Henry More.²¹ In the second circle, around the resplendent Christ, is written the interpretation of this man-god: “VERE FILIUS DEI ERAT IPSE. (Verily was He the Son of God.)” (Mt. 27:54).²² The vision of Kaiser Constantine appears in the third circle as an inscription: “IN HOC SIGNO VINCES.”

Between this threefold inner circle of light—which is clearly separate as the interior of the divine—and the fiery fourth sphere, a dove mediates with flaming wings. This is the Holy Spirit. In this circle of flames, two rows of symbols interpenetrate each other—the names of God in Hebraic characters: Ehie [אֵהִי], Iah [יְהִי], Jehova [יְהוָה], El [אֵל], Elohim Gibor [אֱלֹהִים גִּבּוֹר], Eloha [אֱלֹהִי], Jehova Zebaoth [יְהוָה צְבָאוֹת], Elohim Zebaoth [אֱלֹהִים צְבָאוֹת], Sadai [שַׁדַּי], Adonai Melekh [אֲדֹנָי מֶלֶךְ], in addition to the tetragram which is extended by the Shin, יְהִשֵּׁה and thus a Christological interpretation.²³ Kuhnraeth writes that these names are also of use to those who do not know any Hebrew, to be uttered and heard “in upright and simple faith, and in a pure manner.”²⁴ This is a Kabbalistic concept which also involves ecstasy. According to Kuhnraeth, the angels aid this process of edification.

The fifth circle, which is detached from the sphere of the divine names and in which the divine light opens its space through the clouds, shows the ten Sephirot as beams of light. They, too, are represented in Hebraic characters: כֶּתֶר, חֲכָמָה, בִּינָה, חֶסֶד, גְּבוּרָה, תְּפָאֶרֶת, נֹצֵחַ, הוּד, יִסּוּד, מַלְכוּת [Keter / Crown, Chokhma / Wisdom, Binah²⁵ / Prudence, Chesed / Grace, Gevurah / Power, Tiferet / Fame, Netzach²⁶ / Victory, Hod / Majesty, Yesod / Foundation, Malkhut / Domination]. The divine predicates are symbolized in all their force by their interpenetration of the אֵין סוֹף [Ain Soph / ‘un-cause’], which is displayed as a black locket in the upper middle, and by presenting themselves as the lucid truth, אֱמֶת [Emet / Truth],²⁷ which is symbolized by the locket in the lower middle.

The sixth circle, in which the divine light is already clearly fading, contains the Hebraic alphabet, which should be understood as the primordial and formal structure of the divine revelation.

The commandment pertaining to love of God and one’s fellow man (Lev. 19:18; Mt. 22:37–39) pervades the seventh sphere. The ten angel

choirs convey the commandment of love to the ninth sphere, the structure of the commandment of the divine order, the Decalogue. The names of the angels are taken from Reuchlin's *De arte Cabalistica*.²⁸ The name **הקדוש תרשישים היות** [Tarschischim Hajoth Hakadosch / Tarchschim, Jems, Chrysolit, Animalia sanctuarii] is ascribed to the first commandment, **אופנים** [Ophanim / Rotae] to the second commandment, **אראלים** [Aralim / Angeli magnes] to the third, **חשמלים** [Chasmallim / mediation of the Virtus Dei] to the fourth, **שרפים** [Seraphim] to the fifth, **מלאכים** [Malakhim / angels, lordships] to the sixth, **אלהים** [Elohim / Dei] to the seventh, **בני אלהים** [Bnej Elohim / Filii Deorum] to the eighth, **כרובים** [Kherubim] to the ninth, and **אישים** [Ischim / Nobiles] to the tenth. The eighth and ninth spheres are penetrated by a triangle, which contains the tetragram as Pythagorean triangle²⁹ and is derived from the letter Yod. The base of the tetragram is inscribed with "OMNIA." This is primarily an allusion to the divine authority of the commandments and secondly a sign of the tetractys and of the numeracy (*Zahlenhaftigkeit*) of the divine order, which reveals itself in the decalogue of the commandments.

Khunrath's annotation of the first figure consists only of doxology and edifying sayings, which in the first print perpetuate the power of God, concentrically spreading itself from the center outwards and thereby symbolizing the glory of the Lord in all space. At issue in the Hebraic texts of this Isagoge is the threefold Kadosch in Jes. 6:3, as well as the name of God, Jahwe Zebaoth, which is predicated as "he who is, was, and will be." The threefold (Hebraic) Hallelujah follows:

Wash yourselves, and you shall be clean.

JHSUH, one, bringing forth everything, you have all powers to the servants.

To the first be there praise and reward, to those beneath hymns.

Should these instructions [sc. the Ten Commandments] by chance reach those beneath, then only in the form of a gift, they should be considered as the intentions of the first sovereign (sc. Christ).³⁰

This picture, which shows Christ as the center of the primordial world, is the spiritual centre of the *Amphitheatrums*.³¹ It is connected to the vision of Paulus Ricius, and it is perhaps the paradigm of all representations of this type, which illustrate the logos-theology. Iconographically at issue here is Man as the measure of the cosmos, just as he is with Alberti, Leonardo, and Dürer; but, above all, here, the analogy of Adam-Christ and the hermetic analogy of macro- and microcosm are actuated.

It is philosophically and theologically important that Christ is represented as the appearance of the invisible first God, as the first visibility of God as it were in Himself—i.e., as the self-illumination of the first cause, from which the glory of God then appears. This self-revelation of God is united in the tetragram with Shin—i.e., with the effable name of God: JHSUH. Mediated by the Holy Spirit, the names of God are externalized and form the inner realm of knowledge of the divine. The attributes of God, the Sephirot, qualify the names into attributes. This process of qualification is further divided through the letters—which symbolize the revelation, as well as the commandment of love for God and one's fellow man—into the Ten Commandments. At issue here is the qualification of the divine to the revelation of the law. In this sense, the first figure represents the Empyrean. It is the spiritual place of the Trinitarian God, who unfurls Himself in His names, His qualities, and their angelic hypostases, as well as in His primordial revelations of love and law.

IMAGERY OF THE INVISIBLE

How can we grasp the imagery of this representation? At issue here, it seems, is the representation of the 'realization'—i.e., that which Albertus Magnus called, with regard to the *Liber de Causis*, the "processus universitatis." It is the process of the beginning per se in which God makes Himself appear for Himself and the spiritual cosmos. How is this initial process to be understood? Evidently, according to the same principles as those in Bruno's *De la Causa*. The matter at hand is primarily the process in which the "un-cause apprehends itself in a cause" (as Böhme expressed it at the time). What does this mean? According to the *Liber de Causis*, an Arabic summary of Proclus's *Stoicheiosis Theologike*, the beginning and the first cause are not knowable, because the one knowing has to grasp and encompass the known. If the one knowing were, in this sense, to grasp and encompass the First, he himself would be the First. Thus, the first cause is unknowable and is only accessible as a beginning by nature of its being a sequence. The question of what the beginning was before the sequence, leads to the concept of that which is 'before the difference.' The beginning is comprehensible through the sequence, through a 'before' and 'after.' Thus, before the beginning, there can only be the undifferentiated, that which is without difference. That which does not have difference, is the indeterminate One, the undifferentiated. This undifferentiated One is characterized in the Christian Kabbalah as א [Alef / the Hebraic character



Heinrich Khunrath, *Amphitheatrum sapientiae aeternae*, TAB. I, depiction of the Empyrean, courtesy of Frommann & Holzboog, Stuttgart/Bad Cannstatt.

for 1 and for Ain Soph / without cause or end = ‘un-cause’]. This One, which Plotinus was the first to mention (in the *Enneads* VI, 9, 6, 1–12), is only negatively intelligible, as the negation of all difference. It is apprehended behind the difference as the non-conceptual condition of all distinction, as the first cause through which all difference first becomes comprehensible—namely, as difference which is the initial consequence from the first cause. Thus, the sequence is the difference which fixes the One as the cause, thereby changing it from the undifferentiated unity to the differentiated unity of the beginning. This is what the expression “the un-cause

apprehends itself in a cause” means. This apprehension occurs when the reason ‘comes into appearance’ as a sequence. What does it mean ‘to come into appearance’ (*zur Erscheinung kommen*)?

INITIAL FORMING AND IMAGINATION: BERESHITH

How does something begin? By showing itself. It can be conjured, coerced, expected, or feared. When it shows itself, it is experienced as something new. Why as new? Because there is a crucial difference between that which one expects and that which shows itself. That which one hopes for, expects, or fears—that is possible. It is only when the possibility becomes real that it is able to be experienced. Possibility is the schema with which one expects the future. When the prospective possible takes the leap into reality, then it becomes temporally real, and it is only as the temporally real that it is experienced. The initiality (*Anfänglichkeit*) of the real is experienced when the possible comes into appearance as the real, and that which comes into appearance is that which is perceived only principally hereafter. ‘Hereafter’ can be understood modally or temporally—insofar as it is temporal, it is empirical. Yet, irrespective of whether it is modal or temporal, the beginning can only be experienced as a beginning in hindsight, after it has already begun.

The empirical beginning is not that beginning which is portrayed here in Khunrath. His picture attempts to let the beginning come into appearance. He shows cause and sequence in a modal succession that does not imply an empirical temporality. God’s efficacy as first cause and His unfurling are a constant process that does, however, have a distinct sequence. This unfurling is the imagination (*Bildung*)—i.e., the becoming of the image (*Bild-Werdung*)—which is initial. It is depicted symbolically—i.e., in the forms in which the imaging (*Verbildlichung*) occurs and which always refer to the initial process.

This process is emanative and continuous—i.e., it is discreet in all places, continuous in all places, and overall homogenous. It is, quite simply, the unfurling of the One in its differences. The unfurling is at the same time imagination (*Bildung*), imaging (*Verbildlichung*), and reflection (*Spiegelung*). How is this possible? Primarily in the moments of self-referential difference, which is Neoplatonic and Christian Trinitarian. The indeterminate One proves to be the modal beginning, when the beginning creates its difference; the difference is the Other of One—and, as the Other of the One,

it is its difference and its double. This double is the mirror of the First; thus, the One loses its indeterminacy and becomes the One, which is faced by a Second, an Other, which has, however, the character of the First. This process is continuous; it continually creates at its discretion and maintains the same process. It is the process in which the Other becomes the constant image of the One. Why does the Other become the image of the One? Because the One, insofar as it was undifferentiated, was convergent with All and Nothing. Now, after the original differentiation, the One becomes the differentiated One. In one sense, it distinguishes itself from the Nothing and the All; but now, after it has been determined, it grasps its determination as the negation of its own originality. In this new and final determination, the Other can only be grasped as the Other of itself, for the determination is itself the doubling (Doppelung). After all, in the beginning, there is nothing but the determination of the One by the Other. This doubling is the image of the One, determined as the differentiated One, as its mirror. This doubling is formation (Formung), because formation is *stereis*, determinate negation. The formation of the Other occurs through the One; the formation of the One through the Other. Both of them are a process. Thus, this process consists of three moments: the leap from the indeterminate to the determinate One; the difference; and the unity of this process such that both moments in the continual process of differentiation conceive themselves as reciprocal formation. This is the original process of imagination (Bildung) or the becoming of the image (Bildwerdung), which is supposed to be represented in the interior of this image.

The symbolism of this relation is primarily Christian-Trinitarian. Before the incandescent darkness of the beginning, which has transformed itself from the En Soph to the *prima causa* and is in a state perpetual transformation, stands the crucified and resurrected Christ—the Son of Man created, according to Gen. 1:27, in the likeness of God and qualified, according to the Gospel of John, as the Logos of God. The idea is that God—who is, as the Father, the first cause—first imagines Himself in his ‘Son,’ who is both the Logos and Christ. This Logos is at the same time the apotheosis of Man; for the “Son of Man” is thus absorbed within the Trinitarian God, leading to the deification of humanity. The interior of this theogonic image shows the beginning’s perpetual becoming, a becoming of its image as ‘hypostatic union’ between divinity and humanity.

The spirit, portrayed rather conventionally as a dove (somewhat disheveled), is supposed to symbolize the Spirit of God, which emanates from the Father and the Son and constitutes, as the reciprocating relation, the

inner life of the Trinity. At the same, time it is also the Spirit that hovers over the waters of creation and—in the ambiguity of Logos and Spirit theology—animates the creation.

REALITY, FORMATION (FORMUNG), AND IMAGINATION (BILDUNG)

Is the theogony, the Bereshith of the beginning, addressed to the self-realization of God? The argumentation, used to explain the self-realization of God, is in any case the same one that Aristotle darkly alluded to in *De anima* III, 5, and that determined his concept of life. Life actualizes itself as the interaction between active and passive moments. The active force, pushing beyond itself, becomes real by latching onto a passive counterpart and giving itself form. This process of unification between active and passive moments is called ‘realization’ (*energeia*). With regard to the divine life, this realization actualizes itself as the first setting (*Fassung*) of the original form in the counterpart of the Other. The logos-theological formula of the Trinitarian theology for this process is that the Father knows Himself in the Son, and the Son knows Himself in the Father. When this process grasps itself as a spiritual unity, God realizes Himself in the Trinity itself. The intradivine Trinitarian process is, in this sense, the origin and paradigm for all beginning and all life that perpetually externalizes itself from the indeterminate One into the eternal initial. Because the initial continually reflects itself in the Other of the One, this process is a constant and lively process of imagination (*Bildungsprozess*). At the same time, it is the process in which the indeterminate One, the *Ain Soph*, continually conceals itself in the negation.

Under question within the Trinity are the formal moments (*Formal-momente*) of the One’s self-unfurling. Formal moments are processional formations (*Formungen*) and images (*Bildungen*). The inner animate formation of the Trinity—in Father, Son, and Holy Spirit—is the defining and initial form of all imagination, because it is in continual duplication and reflection which sustains itself. Yet, mysteriously, it does go beyond itself. This ‘mystery of the overflow’ is itself a Plotinian moment. If the divine Trinity, as the highest single good, constantly refers to itself, why would it pass out of its complacent and self-contented unity and go beyond itself? With regard to this question, why the One is not able to remain by itself, Plotinus was only able to ascertain that it is the ‘abundance’ of the One, from which it has brought forth the Other (*Enn.* V, II, 1, 10).

DIVINE NAMES AND THEIR QUALIFICATION

How does the externalization of God occur? Primarily as diremption of the unity into manifold divine names. What does this mean? Divine names, so to speak, are the accesses that lead Man closest to the divine. Names are expressions of the divine reality. (We have to remember here to think of the moment of *energeia*, of putting into effect [Ins-Werk-Setzen], and of active and receptive instance as entities when we consider this concept of reality.) The Hebraic names Kuhnraht mentions originate from the Kabbalistic name lists, and nearly all of them are associated with Hebrew: חַיָּה (chajah / to live). These names are the divine exterior. Through them, the human spirit, participating in God's revealed wisdom, can best grasp God's essence. These names are not attributes; rather, they are early forms (Vorformen) for the qualification of the divine eternal force into emanations and attributes as they are shown in the ten Sephirot. Here, too, something like formation comes into play. The Trinitarian God—that is, the formed life itself—reveals this life first of all in the word variations that the Bible tells of the divine life; and this divine life is further qualified in the next stage as Sephiroth, as numerations or spheres. Here, also, the Bible is the source of knowledge for God's next externalizations. The symbolism of the Sephirot is ambiguous, and a division of good and evil has not yet taken place. These Sephirot, however, are the first qualitative representation of God overall. The first three are interpreted as a representation of the Trinity, the remaining seven as qualities of the Triune God. The entire 'Tree of the Sephirot' is considered to be an image of the first Adam, the spiritual macrocosm, which also serves as paradigm for the world.

The next rings in the extension of the divine are formally described with relative ease. The Hebraic alphabet is comprehended as a store of symbolic forms that all contain secrets, because it is possible to express everything in them. The commandment of love to God and Man presses for—as all commandments do—realization. The ten angel choirs are like mediators of the divine force, instances that proclaim and enforce the commandments of God. They stand, in this sense, between the commandment of love to God and Man and the Decalogue. All those forms that are outside the deity itself—i.e., in the realm of the heavenly extension of God—are interpreted as *formae separatae*.³² These forms, which are also divine 'images' (Bildungen), are grasped as diffusion—i.e., as qualitatively determined and therefore ideally formed emanations of the divine force. The divine force is formed through this qualification. The formation (Formung) is not sensuous; rather, it is ideal and, in the broadest sense, moral.³³

The force of God works in and through this formation. Its first, heavenly qualification is the process that culminates in the commandments. The heavenly ideal space is thus morally qualified.

The moral qualification of the heavenly Empyrean, spiritual, and not-yet-extended space determines the soul of the cosmos overall. These forms emanate the qualified divine force. They are, in this sense, the *diffusivum Dei*. The force of God is inexhaustible, because He is the first cause. This force proves itself morally as the obligation and right to obedience through the divine powers. For Man, the consequence of this emanation of divinely qualified force is that moral obligations are absolutely binding for him.

What is it then that is represented in Khunrath's illustration? Heaven as the abundance of the divine majesty—not extended and yet formed, a spiritual space in which the formation itself is the object of representation. It is a paradoxical space, neither extended nor unextended, a space of spiritual emanation that has an interior and an exterior, that is structured and at the same time provides the basis for all structure. It is an image (Bild) about imaging (Ver-Bildlichung, Bildwerdung) itself, a representation of the *processus universitatis*.

BIBLIOGRAPHY

Primary sources

- Andreae, J. V. *Civis Christianus*. Strassburg: Zetzner, 1619. German version: *Abriß eines rechtschaffenen und thätigen Christenthums unter dem Bilde eines christlichen Bürgers und gottseligen Pilgrims abgemahlet*. 1775.
- Aquinas, Th. *Summa contra Gentiles*.
- Arndt, J. "Arndtsche Kommentare" in *De igne Magorum Philosophorumque ... Das ist: Philosophische Erklärung / von / und Über dem geheimen/ eusserlichen / sichtbaren Glut und Flammenfeuer*, 107–23. Strasbourg: Zetzner, 1608.
- Bruno, G. "De la causa, principio et uno." In *Dialoghi filosofici italiani*. Ed. M. Ciliberto. Milan: Mondadori, 2000.
- . *Über die Ursache, das Prinzip und das Eine. Werke*. Vol. 3. Ed. and trans. T. Leinkauf. Hamburg: Meiner, 2007.
- Fludd, R. *Utriusque Cosmi historia*. Oppenheim: de Bry, 1618.
- Khunrath, H. *Amphitheatrum Sapientiae Aeternae*. 1st edition, 1609. Reprint, Stuttgart/Bad Cannstatt: n.p., 2011.
- Maier, M. *Atalanta fugiens*. Oppenheim: n.p., 1608. Reprint, Kassel: Bärenreiter, 1964.
- More, H. "Visionis Ezechielis sive Marcavae Expositio ex principiis philosophiae Pythagoricae praecipisque Theosophiae Judaicae reliquiis concinnata." In *Henrici Mori Cantabrigiensis opera omnia*. Vol. 1. London: n.p., 1679. Reprint, Hildesheim: Olms, 1966.
- Pistorius, J. *Ars Cabalistica*. Basel: n.p., 1587. Reprint, Frankfurt am Main: Minerva, 1970, 138–92.

Reuchlin, J. *De arte Cabalistica*. Hagenau: n.p., 1517.

Töllner, R. *Der unendliche Kommentar: Untersuchungen zu vier ausgewählten Kupferstichen aus Heinrich Khunraths, Amphitheatrum Sapientiae Aeternae Solius Verae* (Hanau, 1609). Amersbek bei Hamburg: Verlag an der Lottbek Jensen, 1991.

Secondary sources

Eco, U. "Lo strano caso della Hanau 1609." *L'Esopo* 40 (1988): 9–36.

Gilly, C. *Johann Valentin Andreae, 1586–1986: Die Manifeste der Rosenkreuzerbruderschaft* (Katalog Wolfenbüttel und Amsterdam). Amsterdam: Bibliotheca Hermetica, 1986.

Lederer, T. *Der Kölner Kurfürst Herzog Ernst von Bayern (1554–1612) und sein Rat Johann Grasse (um 1560–1618) als Alchemiker der Frühen Neuzeit: Ein Beitrag zur Geschichte des Paracelsismus*. Heidelberg: n.p., 1992.

———. "Leben, Werk und Wirkung des Stralsunder Fachschriftstellers Johann Grasse (nach 1560–1618)" in *Pommern in der Frühen Neuzeit. Literatur und Kultur in Stadt und Region*. Eds. W. Kühlmann and H. Langer, 227–37. Tübingen: Niemeyer, 1994.

Leibenguth, E. *Hermetische Poesie des Frühbarock: Die Cantilenae intellectuales Michael Maiers. Edition mit Übersetzung, Kommentar und Bio-Bibliographie*. Tübingen: Niemeyer, 2002.

Neumann, H.-P. *Natura sagax—die geistige Natur. Zum Zusammenhang von Naturphilosophie und Mystik in der Frühen Neuzeit am Beispiel Johann Arndts*. Tübingen: Niemeyer, 2004.

Ruska, J. *Tabula Smaragdina: Ein Beitrag zur Geschichte der hermetischen Literatur*. Heidelberg: Winter, 1926.

Schmidt-Biggemann, W. *Geschichte der Christlichen Kabbala*. Stuttgart/Bad Cannstatt: Frommann & Holzboog, 2012 [forthcoming].

———. *Philosophia Perennis: Historische Umriss abendländischer Spiritualität in Antike, Mittelalter und Früher Neuzeit*. Frankfurt am Main: Suhrkamp, 1998.

Telle, J. "Grasse, Johann." In *Killy-Literaturlexikon: Autoren und Werke des deutschsprachigen Kulturraumes*. Vol. 4. Ed. W. Kühlmann, 316. Berlin: De Gruyter, 2009.

———. "Tabula Smaragdina." In *Lexikon des Mittelalters*. Vol. 8, 390. Munich: Lexma, 1997.

NOTES

- 1 Bruno, *De la causa*, 2, 107; Bruno, *Über die Ursache*, 88. "Therefore it is clear: we can know absolutely nothing whatsoever about the divine substance—be it that it is infinite; be it that it is the furthest from the effects which for their part constitute the most extreme possibility of our discursive cognitive faculty—apart from one way which the Platonic thinkers call trace, the Peripatetics removed effect, the Kabbalists husk, the Talmudists backwards view or behind view, the Apocalypitics mirror, shadow or puzzle."
- 2 Bruno, *De la causa*, 2: 104; Bruno, *Über die Ursache*, 86.
- 3 Bruno, *De la causa*, 2: 105; Bruno, *Über die Ursache*, 86.
- 4 Bruno, *De la causa*, 2: 107; Bruno, *Über die Ursache*, 88.
- 5 Bruno, *De la causa*, 2: 144; Bruno, *Über die Ursache*, 116–18.

- 6 Cf. the fundamental contributions: Neumann, *Natura sagax*; and Gilly, "Einleitung" in Khunrath, *Amphitheatrum*.
- 7 For information about Johann Grasse (1560–1618), see Telle (2009) 316; Lederer, *Der Kölner Kurfürst*, and "Leben, Werk und Wirkung," and Leibenguth, *Hermetische Poesie des Frühbarock*, 39sq.
- 8 The manuscript of the second edition was not completely finished when Khunrath died. Erasmus Wolfart completed it: "Ipse quidem Auctor immatura morte praeventus, aliqua ex parte, sed non magna, imperfectum post se reliquit." Khunrath, *Amphitheatrum*, preface, 9.
- 9 Eco, "Lo strano caso della Hanau," 9–36; Gilly, *Die Manifeste der Rosenkreuzerbruderschaft*, 32–40; and Töllner *Der unendliche Kommentar*. Töllner considers the four copper engravings: 1. Alchemistic heptagonal citadel, 2. Stone of the Wise [or the Philosopher's stone, my no. 3.], 3. Porta Amphitheatrici, and 4. Oratorium/Laboratorium.
- 10 The Arndtian commentaries are printed in *De igne Magorum Philosophorumque...* Strasbourg: Zetzner, 1608, 107–23.
- 11 Khunrath, *Amphitheatrum*, preface, 9.
- 12 Ibid. Preface by Erasmus Wolfart. "Amphitheatrici hoc insigne opus, in quo Auctor Henricus Khunrath Lips. utriusque Medicinae & Philosophiae Doctor, Sapientiam Divinam, Humanam, Macro & Microcosmicam: Divino-Magicam, *Christiano-Cabalisticam* et Physico Chemicam, admiranda industria, spectandam Oculis: contemplantam Mente, sectandam opere, in Oratorio & Laboratorio, omnibus proposuit, Amice ac Candide Lector, damus tibi nunc integrum et absolutum."
- 13 Cf. Telle, "Tabula Smaragdina," 390 (with a more extensive bibliography on the topic), and the comprehensive philological reworking by Julius Ruska, *Tabula Smaragdina*.
- 14 In 1602, the copper plates of Khunrath's portrait (by Johan Diricks van Campen in Magdeburg) were completed. The five new, unsigned rectangular plates for the second edition of the *Amphitheatrum*, as well as the oval copper title, are all furnished with the date "M. DC. II." Khunrath also furnished the "Epilogus" with the same date of "1602" for the new edition of the *Amphitheatrum*, registering it subsequently for the catalogue of the Frankfurt Book Fair. "Henrici Conradi Lips. Medicinae doctoris Amphitheatrum sapientiae aeternae Christianocabalisticum, Divinomagicum, Physiochymicum, Magdeburgi in fol." *Indicis Generalis continuatio sexta, in qua continetur designatio librorum, qui nundinis vernalibus Francofurtensibus et Lipsiensibus Anni 1602, vel novi, vel emendatiores aut auctiores prodierunt, Das ist / Continuation vnd Verzeichnis Aller Bücher / so zu Franckfurt in der Fastmeß vnd zu Leipzig im Ostermarckt beydes dieses 1602. Jahres entweder gantz new oder sonsten verbessert oder auff's neue widerumb aufgelegt / vnd in Hennning Grossens Buchladen zu Leipzig mehrentheils zu finden*, [Leipzig], In officina Grossiana, [1602], B3r. The edition did not, however, come about at the time.
- 15 Töllner, *Der unendliche Kommentar*, 176–96. Töllner calls this plate "Der Prolog" and provides an interpretation as well as a transcription of the texts.
- 16 Khunrath, *Amphitheatrum*, 145sq. [wrong pagination for 147]. (6th level, Sap. 7:17.)
- 17 Cf. Khunrath, *Amphitheatrum*, 2. 2nd count p. 145 [wrong pagination for 147]. The definition *Cabala est symbolica receptio* originates from Reuchlin. Johann Arndt seemingly refers to this definition in his *Judicium, über die 4 Figuren deß grossen Amphitheatrici*, printed in the appendix of Khunrath, *De igne Magorum Philosopho-*

rumque, 110sq. “Wann nun einer das Liecht ferner erkennen / und siehet in den unsichtbaren Creaturen / alß in den Engeln / und Menschlichen Seele / ja in allen Geistern / unnd kan sehen alle Engelische krafft / und kan sie gebrauchen / der ist ein Cabalist, unnd seine Kunst heisset Cabala, ist viel höher dann Magia: Wiewol Magia im anfang ist so ein geschwindes Lichte / wie ein Gedanken / und so behendt / das sie in einem augenblick durchgeheth alle Geister / wie verstendig / lautter und scharff sie sind: wie Salomon daselbst auch spricht: Die Weißheit ist daß allerbe-hendeste / sie kehret / unnd gehet durch alles / so gar lauter ist sie.

“Diß Cabalistische Liecht ist gewesen der Glantz unnd Licht in den Brustschildlein deß Hohenpriesters / durch welches Licht der HERR ihm geantwortet hat / und diß Liecht befahl Gott der HERR dem Moysi hinein zuthun in die edlen Stein / wie dann ein Cabalist wol thun kan. [111].... Auch ist diß die Eygenschaft der Cabalae, das / wie die Magia ein liecht ist / und erkendtnisse aller natuerlichen ding / diß zeitliche Leben betreffent: Also machet sich Cabala zu den Geistlichen Himlischen dingen / die Seele betreffent / sonderlich aber zu der Erkenntnuß unsers HERREN JESU CHRisti.

“Denn Cabala offenbahret die verborgene Gemeiniß der Schrifft vom Messia / welche geheimnuß unter dem Buchstaben der Schrifft verborgen ligen. In dem Cabalistischen Liecht aber siehet man diese verborgene Göttliche geheimnuß.“ (112) Arndt distinguishes between magic and cabala, the former interpreting images, the latter interpreting dreams.”

- 18 Cf. Khunrath, *Amphitheatrum*, 145. “THEOSOPHIA est Theologia, in ternario, (hoc est, Biblice, Macro et Microcosmice) *Catholica*, IEHOVAE Mirabilis mirifica (v. 157) vox Dei in omnibus, per omnia, de omnibus ad omnes (v. 35). PHYSICA est Mundi utriusque, hoc est, Maioris totius et Minoris, (secundum Corpus et Spiritum quae habet ex Macrocosmo) *Traditione, Natura et Arte, Universaliter, ex et in sacrosancta Scriptura, Lapide Philosophorum et Nobisipsis; Particulariter ex et in partibus utrorum; cognitio et tractatio*. PHYSICOCHEMIA est ars cognoscendi Librum Naturae (Macro et Micro Cosmice) magnum: ita, ut legere possis (tam universaliter, quam particulariter) Temetipsum in mundo maiore; et contra Mundum maiorem in Teipso: ad humani corporis sanitatem tuendam, morbosque profligandos (v. 297). PHYSICOMEDICINA est ars, *methodo Naturae Chemice solvendi, depurandi et rite reuniendi Res Physicas; Universales* (Macro Cosmice, Lapidem Philosophorum, Micro Cosmice corporis humani partes: absit tamen calumnia de pristina figura reddenda) *et particulares, globi inferioris*, OMNES. MAGEIA *Vetustissimorum Sapientium* (qui Persis Magi, Graecis *Philosophi* Latinis *Sapientes*, Indis *Gymnosophistae*, Graece et *Brachmanes*, Aegyptiis *Sacerdotes et Mekubales*, Hebraeis *Prophetae et Cabalistsae*, Babylonis, nec non Assyriis *Chaldaei*, Gallis *Celtis Druidae*, et Bardi et *Semnothei* appellabantur) UNIVERSALITER sumta, idem quod studium apud Hebraeos Cabalae summe perfectum et absolutum, cum in Divinorum cultu, *Spiritualium tractatione atque cum iis conversatione, et Naturalium investigatione, pie ac sapienter consisteret*: Quamvis hi, in uno eodemque stadio, Duce benigniore, longe praecurrerent illos. At, PHYSICOMAGEIA (opus tantum de Beresith; hoc est, Sapientia Naturae, vers 162) est Naturali artificio (Macro & Micro Cosmice) mirifica practicandi ratio. HYPERPHYSICOMAGEIA (respectu Naturalis & Doctrinae causa, sic dicta) est cum Angelis bonis, flammeis DEI ministris, sub modo delegatae a DEO administrationis, tam vigilando quam dormiendo, meditare et immediate, pia et utilis conversatio. CABALA est Divinae revelationis, ad

salutiferam DEI, & Maschiah agnitionem, Formarum separatarum, Naturae (in Macro et Micro Cosmo) nostrique ipsius cognitionem, unionem, et fruitionem; nec non SSae Scripturae intellectum verum; vel immediate, aut medio conveniente (quo Divina humanitus sentire possumus) tam Universaliter, quam Particulariter, TheoSophice sortita, Symbolica RECEPTIO.”

- 19 If Khunrath had known the book Bahir, then he could have used it here.
- 20 Cf. the comment in Khunrath *Amphitheatrum*, 2nd count, p. 57, no. 137 (3rd level, Sap. 7,25): “Vapor est enim virtutis Dei, et emanatio claritatis omnipotentis syncera: et ideo nihil inquinatum in eam incurrit.” (For it is the vapour of the power of God and the true emanation of the omnipotent clarity and hence nothing impure enters into it.) *Vapor*: Khunrath considers this word as biblical proof for the Mosaic theory of creation from the Ruach Elohim, according to which the Essentia Divina is the Omnia in omnibus, which realizes everything out of the Ensoph. Paul Col. 1:20, is quoted – i.e., “through the Son the whole Universe is reconciled with the Father.” This is the significance of the first figure, in which the crucified Christ appears. “Est enim crux sancta Christus ipse crucifixus, figura Amphitheatri huius prima, cruciformiter vincens, in quo veterum magorum caractere et nos theo-sophicè vincemus.” (Since it is the holy Cross, the crucified Christ himself, the first figure of this Amphitheatrum which triumphs in the form of the Cross, and in this character of the old, we too triumph theosophically.) *Emanatio*: “Emanationes Dei cabalistae ex sacris fontibus numerant decem, quas appellant Sephiroth.” (Of the Holy Scriptures, the Kabbalists count ten emanations of God which they call Sephirot.) The Sephirot are enumerations, of which the Sapientia is the second. Kuhnath refers to *Amphitheatrum* 1609, 2nd count, p. 77, verse 167. There he quotes Johannes Reuchlin, who allegedly described wisdom as the breath of God and illumination of the divine in the seventh chapter of *De Verbo mirifico*. Also cf. Khunrath’s commentary to aphorism 261.
- 21 This Christological ideal man is represented as a microcosm-macrocosm symbol in Leon Battista Alberti, Leonardo da Vinci, and Albrecht Dürer. It is also cited in the version of Adam and Eva (just as in Dürer). Michael Maier, *Atalanta fugiens*, Epigramma XXI, 93. For Paulus Ricius’s cosmic, ideal man, cf. Schmidt-Biggemann, *Philosophia Perennis*, 272–81. He also figures, as a literary motive, in Andreae, *Civis Christianus*, 1–6 (German version: *Abriß eines rechtschaffenen und thätigen Christenthums unter dem Bilde eines christlichen Bürgers und gottseligen Pilgrims abgemahlet*, 1775). Further depictions in Fludd, *Utriusque Cosmi historia*, vol. 1, Title copper; and More, *Visionis Ezechielis*, vol. 1. 477.
- 22 The text fragments of the depictions are reproduced as exactly as possible based on the engravings of the 1609 edition. Abbreviations in Latin are rendered in full. Translations are to be found in brackets or in the footnotes. They originate, if not otherwise indicated, from me.
- 23 The names could originate from Paulus Ricius’s Gicatilla translation (*Porta Lucis Haec est porta Tetragrammaton*, Augsburg, 1516), which Khunrath could have known from Pistorius, *Ars Cabalistica*, 138–92. Cf. Schmidt-Biggemann, *Philosophia Perennis*, 169–75. The tetragram extended by the Shin was an established aspect of the Christian interpretation of the Kabbalah since Nicholas of Cusa, cf. Schmidt-Biggemann, *Geschichte der Christlichen Kabbala*, Introduction.
- 24 In the commentary to verse 252 (1609).
- 25 Incorrectly spelled. Nun is read instead of Kaf.

- 26 Incorrectly spelled. Nun is read instead of Beth.
- 27 Cf. Khunrath's commentary to aphorism 10 (1st level, Sap. 8:1): "Sum quidem et ego mortalis homo, similis omnibus, et ex genere terreno illius qui prior factus est et in ventre matris figuratus sum caro" (Of course, I, too, am a mortal man, similar to all others; and from the terrestrial race of him who was made before, I, too, have been fashioned in the womb of the Mother). Khunrath takes the "Sum quidem et ego mortalis homo" as an opportunity to describe the presence of wisdom amongst men—first of all, in the Old Testament (Ex. 31:3). Bezeel is here the artist who is gifted with wisdom. Incidentally, this is the Old Testament's absolute archetype of the artist and alchemist. After Bezeel comes David, the sinner, through whom, nevertheless, divine wisdom speaks. This is also true of Solomon. In the New Testament, Jesus is portrayed as the incarnation of wisdom and truth—that is, above all Johannine. Khunrath, *Amphitheatrum*, 2nd count p. 9. Wisdom is also the promise of God, his seal of truth (as it is shown in the first figure).
- 28 Reuchlin, *De arte Cabalistica*, fol. LXXV. Also cf. Pistorius, *Ars Cabalistica*, 715. In Reuchlin, the angels convey the powers of God through the spheres, and the angels themselves are responsible for these cosmic spheres.
- 29 Tetragram-Tetractys is to be found everywhere since Reuchlin.
- 30 This somewhat secretive text surely alludes to the relationship between the Jewish Law (OT) and the Gospel of Love (NT) as proclaimed by Christ.
- 31 Johann Arndt comments in the appendix to Heinrich Khunrath, *De igne Magorum Philosophorumque* [...] *Das ist: Philosophische Erklärung/ von/ und Über dem geheimen/ eusserlichen/ sichtbaren Gludt und Flammenfeuer* [...] Straßburg, Zetzner, 1608, 118: "In der ersten Figur / begreiffet er alle drey liechter / Natuerlich, Ubernatürlich / Göttlich. Oder: Natürlich / Englisch / Göttlich: Daß ist Magia, Cabala und Theologia, unnd beschleust alle drey in die erste einige Figur, um der H. Trinitet willen / Un sind die Hebreische Namen / die im Circkel stehen: Erstlich GOTTES namen / oder Göttliche krafft: Dann GOTTES Namen sind Göttliche krefftten / Derer Namen Gottes sind 72. Wie sie aber gebrauchte / weiß niemandt dann ein Cabalist / und gehet die Cabala vornemblich umb mit den Göttlichen Namen. Auß diesen Namen Gottes fließen nun die Namen der Engel / die auch in der ersten Figur im Circkel stehen / unnd seyndt nichts dann Englische krefftte. An diesen Engliches krefftten hangen die natürlichen krefft deß Firmaments / die Virtutes Coelorum, davon der HERR sagt: Des Himmels krefftte werden sich bewegen."
- 32 In Thomas Aquinas, *Summa contra Gentiles*, vol. 2, chap. XCI–CI, the "substantiae separatae" are defined as angels. Here, all the spiritual entities are interpreted as "Formae separatae."
- 33 Here, one may consider that the concept 'idea' comes from *Fīð (to see).

INGRID ROWLAND
A Catholic Reader of Giordano Bruno
in Counter-Reformation Rome: Athanasius Kircher, SJ
and *Panspermia Rerum*

Sic tellus recipit vitalia solis ab orbe
Semina, et ob motum radiorum temperat aestus.

De immenso et innumerabilibus, BOOK IV, CHAPTER 14.¹

In 1601, the Roman Inquisition added “all the writings” of Giordano Bruno, *omnia scripta*, to its *Index of Prohibited Books*. Although the phrase *omnia scripta* sounded decisive, it also reflected an uncomfortable fact: the philosopher’s inquisitors were still uncertain about what, and how much, he had actually written in his troubled, well-traveled life. The search for his published work had dragged his trial for heresy in Rome into a seven-year ordeal, and even so, Giordano Bruno’s condemnation to death for “obstinate and pertinacious heresy” in 1600 drew mostly from verbal testimony given during the course of his trial rather than from the defendant’s written legacy.

Until his death, however, Bruno’s contemporaries had been able to read his work without interference from the Church; these readers included both Johannes Kepler and Galileo Galilei. And because the *Index* had no binding effect in the Protestant world (even Kepler, writing from nominally Catholic Prague, could mention Bruno openly in 1610 without fear of reprisal), several of Bruno’s late works on memory, the *De Specierum Scrutinio* (Prague, 1588), and the *De Lampade Combinatoria Lulliana*, *De Progressu Logicae Venationis* and *De Venatione Logicorum* (all Wittenberg, 1587), were actually reprinted in (then) Protestant Strasbourg in 1617.²

More surprisingly, perhaps, Giordano Bruno also continued to exert his influence in Catholic Europe: half a century after his death, for example, his name appears in the work of two German-born Jesuits with long experience in Italy, Father Athanasius Kircher and Father Gaspar Schott, both of them born after the Holy Office’s ban on all of the heretic’s works had gone into effect, and both clearly unafraid to cite Giordano Bruno openly in their own publications.

Like Bruno himself, Kircher and Schott were exceptionally well-traveled men, and like him, they made their way through a Europe wracked by the violent conflict between Catholics and Protestants—a conflict formally identified from 1618 to 1648 as the Thirty Years' War. Indeed, it was an important episode in that war, the penetration of Swedish troops into Germany under King Gustavus Adolphus in 1631, that forced Kircher and Schott to flee the Jesuit College at Würzburg, where they had first met as professor and student. Kircher fled to Avignon, and then on to Rome; Schott was sent to Sicily. Both, then, were acutely aware of the dangers, subtle and overt, created by religious dissension, and both faced those dangers with a combination of courage—Kircher once faced down a Protestant mercenary who threatened him with a knife to his throat—and the cleverness that had already become proverbial for their order.

The Jesuits' reputation for cleverness was well founded. Their Society may have been founded by a former soldier, who stressed absolute agreement among his companions and their absolute collective service to the papacy, but somehow those companions quickly came to exhibit a remarkable variety of opinions within their disciplined ranks. At heart, after all, the Jesuits were innovators: a new order created to face the challenges of the contemporary world; hence, adapting to circumstance often played as central a role in their experience as their carefully standardized curriculum and their Spiritual Exercises.

Almost from the outset, this ability to adapt and adjust put the Society of Jesus at the center of research into natural philosophy, as first-rank participants in what would later be termed the scientific revolution. Galileo Galilei's first lecture in Rome took place in the great hall of the Jesuits' Roman College. The Society had extended the invitation through its eminent Professor of Mathematics, Christoph Clavius, the astronomer who had also supervised the revision of the Julian calendar for Pope Gregory XIII. Clavius, over his decades of service to teaching, maintained a cautious openness to the theories of Copernicus and the observations of Galileo, but many other Jesuits also harbored ideas about cosmology that differed significantly from the accounts of Aristotle and Ptolemy. Ironically, these dissenters included Bruno's lethal inquisitor, Robert Bellarmine, the first Jesuit to hold such an official position in the Holy Office; like Fathers Kircher and Schott after him, he was convinced that space was a fluid rather than a nesting series of crystalline spheres.

In general, Jesuits had better access than most of their peers to controversial books, both through their activities as consultants to Church and Holy Office, and through their system of internal censorship; their rigor-

ous training was considered sufficient protection against undue influence by heretical writing. That same training had prepared them, after all, for the burdens, and often the terrors, of missionary work all over the globe, for encounters with cultures far removed from Christianity and its internal doctrinal disputes. The calm, clever adaptability of Athanasius Kircher and Gaspar Schott reflects their order's general tendency to face differences of conviction by aiming to persuade their adversaries rather than compel them, bearing in mind Ignatius' supreme aim of service: "to comfort souls."

This same sense of adaptability appears in the documents drafted by the Society's *Revisores*, the board of five charged with examining manuscripts written by Jesuits and approving them for publication with a document called a *censura*, an evaluation. Any Jesuit's work, first of all, was required to "exceed the average," *superare mediocritatem*; more than censors, then, the *Revisores* were first of all guardians of quality—much like peer reviewers who provide the same controls for the editors of modern scholarly and scientific journals. The *Revisores* certainly took matters of doctrine into consideration. On the whole, however, their *censurae* pay far greater attention to factual accuracy and literary tone than to doctrinal orthodoxy—at least in dealing with their famous colleague Athanasius Kircher. To judge from their records, the fact that Father Kircher might be reading a heretic like Giordano Bruno was of no concern whatsoever.

Still, within the far from inflexible confines of the Jesuit fold, Athanasius Kircher posed a continual challenge to the fellow members of his order and to the *Revisores*, in particular. His mind ranged more widely than most—he often quoted Plato's dictum, "there is nothing more delightful than knowing everything"—and behind his timid exterior, as the *Revisores* well knew, there lodged a powerful, intractable ego. Before arriving in Rome in 1634, he had already gained an international reputation for his work on Egyptian hieroglyphic script, and it was for this skill that he had been assigned to the Society's Roman College (the Collegio Romano) in 1634. His status within that institution was always a privileged one, but it became more so in 1651, when the Collegio Romano set up its own museum (or, as Kircher called it, Musaeum) with Kircher as curator. The curiosities amassed in the Musaeum drew most of the illustrious visitors to Rome to this sanctum within the Jesuit college, as did the international reputation Kircher had earned as a writer; by the time of the Musaeum's opening in 1651, he had published exhaustive works on ancient Egypt, magnetism, music, and optics as well as a host of smaller pamphlets. He used his existing books to hold out the tantalizing promise of much

greater works on the way. In fact, his magnum opus on the Egyptians, *Oedipus Aegyptiacus*, would be published in fascicles from 1652 to 1655, adding up at last to thousands of lavishly illustrated pages on every aspect of ancient Egyptian culture.

Throughout his career, and especially in Rome, Kircher also enjoyed protection in high places. His initial assignment to the Collegio Romano had been engineered by Cardinal Francesco Barberini, the most distinguished nephew of the reigning Pope, Urban VIII. A brief appointment in 1637–38 as father confessor to the newly converted Landgrave Friedrich of Hessen took Kircher to Malta, where he forged what would become a life-long friendship with the island's Inquisitor, Apostolic Delegate Fabio Chigi; this connection stood the Jesuit in especially good stead when Urban VIII was succeeded as Pope in 1644 by his inveterate enemy, Giambattista Pamphili, who took the name Innocent X. The industrious Jesuit also took especial care to cultivate the favor of the Emperor of Austria, and, eventually, Queen Christina of Sweden.

Kircher spent a significant amount of his early career at the Collegio Romano teaching mathematics, including astronomy. Yet by the 1650s, surprisingly, he had never published on the subject. There were good reasons for his silence, among them the burning at the stake of Giordano Bruno in 1600, and, especially, Galileo's condemnation for heresy in June of 1633—just over a year before Kircher first took up residence in Rome. Furthermore, the trial's venue, the Dominican convent of Santa Maria Sopra Minerva, stood directly across the street from the classrooms of the Collegio Romano, where Kircher was expected to teach the very subject that had brought Galileo such grief.

Some of the instruments that Father Athanasius and his colleagues used in their teaching still survive, including an armillary sphere that can be adjusted to present either a Sun-centered Copernican or an Earth-centered Ptolemaic planetary system—a good indication that astronomy in the Collegio Romano ranged well beyond the limits of Aristotelian cosmology.³ Kircher himself opted, like most of his colleagues, for a version of Tycho Brahe's planetary scheme, in which the Sun and Moon orbited the Earth and the remaining planets circled the Sun (a system the ingenious seventeenth-century armillary sphere does not represent). The Jesuits' official curriculum, the *Ratio Studiorum*, may have prescribed following Aristotle in all matters of philosophy, but the actual practice of astronomy at the Collegio Romano had long since adapted to modern times.

Two factors may have urged Kircher to write at last about the cosmos, and thus to confront the legacy of Giordano Bruno. In 1652, his onetime

student Gaspar Schott was transferred from Sicily to the Collegio Romano. The two men resumed an intense collaboration and friendship, focused on what Schott called “our Musaeum” (although to Kircher it was always “mine”). The second crucial event occurred in 1655, when Kircher’s friend from Malta, Fabio Chigi, was elected to the papacy as Alexander VII. Chigi offered Kircher more than the protection of a powerful patron: he also offered his passionate interest, which extended as widely as Kircher’s curiosity. A formidable mind in his own right, scholarly and relentlessly curious, Pope Alexander put his old friend to work on a host of assignments, from evaluating books to small research projects. At the same time, however, Father Athanasius labored away at larger projects: geology, geography, and—at last—cosmology.

Ever wary of controversy, Kircher swathed his first book on cosmology in layers of fiction; *Itinerarium Extaticum Coeleste*, “The Ecstatic Heavenly Journey,” is cast as the dream of a Kircher-like character named Theodidactus (Greek for “taught by God”) who is guided through the heavens by an angel named Cosmiel. Before publication, the manuscript of the *Itinerarium Extaticum* had gone, as always, to the *Revisores*, who had approved publication provided that Kircher made some revisions to the text. By 1655 those emendations seem to have been made.⁴ The book was published in Rome in 1656; by then, Gaspar Schott had been transferred from Rome to Ingolstadt, and in many ways the *Itinerarium Extaticum* stands as a monument to the bond between its author and the now absent friend who had encouraged its writing. It is hard, in fact, not to imagine at least a bit of Gaspar Schott in the character of Cosmiel, whose sharp tongue and outspoken opinions often seem far more human than angelic. In the meantime, Kircher prepared a second volume that took the adventures of Theodidactus and Cosmiel from the extreme edges of the cosmos to the center of the Earth. Typically of Kircher, always a shrewd marketer, this second *Itinerarium* was to provide publicity for his next large work, *Mundus Subterraneus*, a project he had first conceived twenty years before, during his trip to Malta.

In 1657, one of the *Revisores*, François Dunel, would write to the Jesuit Father General, Goswin Nickel, to complain that the first edition of the *Itinerarium Extaticum* had passed through their hands all too quickly.

Not a few people took it extremely badly when the *Itinerarium Extaticum* of Father Athanasius Kircher was published last year, given that many things are contained in it that are abhorrent to the common opinion of scholars, so that the author seems to put forth his

dream without any foundation whatsoever, rather than to give his readers something based on true, sound reason; I thought I should warn Your Fatherhood that I assented only grudgingly to its publication, for no other reason than that two *Revisores* who were my colleagues consented to permit its publication if several things were omitted or corrected. Now, however, when many sober and learned men who say that they have read the book accuse the Father *Revisores* of some kind of special treatment, or certainly an excessive connivance with the author, and some [...] say that they marvel that these kinds of things are approved in Rome.⁵

Dunel's comments are revealing on a number of levels: he registers the degree of dissent within the Catholic and Jesuit community, the feeling that Kircher enjoys special privileges, and a sense that standards in Rome are somehow more lax than elsewhere. Those "sober and learned men" were not wrong in their impressions: the *Itinerarium Extaticum* presented not just one or two controversial ideas, but a constant succession of them—from the moment that Theodidactus, mounted on the wings of Cosmiel, braces himself for the impact with the Moon's crystalline sphere and gets only a sardonic laugh from his guide. Soon Theodidactus learns that space is fluid, that the Moon and all the other heavenly bodies are made of four elements like the Earth, and that Aristotle was severely mistaken on many accounts.

By the time he and Cosmiel reach the region—not the sphere—of the fixed stars, and discover first hand that it is nearly infinite in size and its stars are not so fixed at all, any reader could recognize that the outer space in which Athanasius Kircher's mind loved to range was nearly as boundless in its extent as the infinite cosmos of Giordano Bruno. Still, neither Cosmiel nor Kircher were going to say so explicitly. Neither, however, did the *Revisores*, nor did the learned men who, according to François Dunel, could not read the *Itinerarium Extaticum* "without nausea and rage." As the telescope continued to reveal its secrets, it steadily increased the number of people willing to accept a universe of infinitely greater dimensions than the one that had been handed down over the centuries by the sages of Athens and Alexandria. Furthermore, as Harald Siebert has pointed out with meticulous insight, Kircher took some careful steps to keep his cosmology, if only barely, within the bounds of orthodoxy: he maintained that the whole system remained centered on the Earth, and put limits, albeit very broad ones, on the size of the universe.⁶

If the first published version of the *Itinerarium Extaticum* had stirred up a controversy, the second part promised at least an equal disturbance to the digestion of François Dunel and his band of like-minded learned men. As a prelude to Kircher's ambitious *Mundus Subterraneus* (finally published in 1665), it presented some of the larger book's central ideas in a concise, synthetic version, building public anticipation for the larger work, and, probably, sounding out its reception in the learned community. Dunel, for one, had seen its potential for trouble. As he wrote to Goswin Nickel:

It contains many things that go against the good received Philosophy about the primal matter, about the generation of forms from matter, about the number of elements, about the essence of souls, about the way in which the heavenly bodies work, and other matters of this sort. [...] the author, in his usual way, no matter how often he has been warned, brags repeatedly, as if he alone has penetrated the secrets of nature, scorning other philosophers; these, he says, wear out their time and effort in useless metaphysical abstractions.⁷

Again, Dunel put his finger on the most challenging aspect of Kircher's work, again a subject that brought the Jesuit close to Giordano Bruno: the small-scale composition of the universe. Bruno's final works, all printed in Frankfurt in 1591, were three didactic poems in Latin hexameter that combined the philosopher's ideas about the infinity of the universe with his atomism: *De Immenso*, *De Triplici Minimo*, and *De Monade*. Here, Bruno concludes that the universe is infinite in time as well as space, a conviction that led him to reject the idea that God had created the cosmos some six thousand years before his time.⁸ Bruno's God has always existed and shall always exist in a universe of endlessly recombining atoms.⁹ He finds support for this expanded timescale in phenomena like the fossil seashells he found as a child at the gates of the inland city of Nola, contending that the Earth, like the rest of creation, has been in a constant state of flux forever. This flux is the natural result of the composition of the universe: atoms moving, combining, breaking apart, and recombining within the limitless, living world-soul that is God. The individual combinations never last, but the system itself is imperishable.¹⁰

Bruno was a pioneering thinker, and a highly theoretical thinker. When Kircher addressed some of the same questions in his *Itinerarium Extaticum*, and then in his *Mundus Subterraneus*, he took a much more empirical tack, using ancient Egyptian king lists to push back the date of

Creation, and rooting the combination and recombination of the elements in specific geological and biological observations. Born just over half a century apart, the two men necessarily shaped their own thoughts in accordance with their times, and Kircher's empiricism reflects, in part, the empiricism of his contemporaries. His writings also, however, reflect his own means of survival in a time of violent religious controversy; whereas Bruno was willing to challenge Christianity head on, Kircher remained a devout Catholic, although he was also catholic in the widest sense of that compendious word.

Characteristically, then, the second volume of the *Itinerarium Extaticum* focuses on Kircher's way to reconcile canonical Biblical accounts of creation with his geological observations and his fascination with fossils. Long before the division of light from darkness, he contends, God had created a primordial chaotic mass imbued with a force that Kircher called *panspermia rerum*: the universal 'seeding power' or 'fertility of things.'

In many respects *panspermia rerum* plays the same role in Kircher's universe that atoms and the world-soul play in Bruno's, not least because the Lucretian word for atoms, as both authors well knew, is *semina rerum*: the "seeds of things."¹¹ Yet the Jesuit *Revisores* call no particular attention to this remarkable doctrine in their examination of the "Second Itinerarium Extaticum." They simply say that he should make his argument on the subject without insulting Aristotle at the same time. They also, as always, urge him not to brag, and note some factual inaccuracies in his text:

We have read the Second *Iter Extaticum* of Father Athanasius Kircher [...] and we judge that it may be printed, after the following corrections:

1. What he says in the second dialogue against the Peripatetics about the Primal Matter, and the creation of substantial forms, should be deleted, and he should explain more clearly his opinion about the number of the elements, about which he speaks confusedly and inconsistently, and all the passages in which he brags, or insults the Peripatetic Philosophers, should be omitted.¹²

Significantly, however, the second edition of *Itinerarium Extaticum* was printed, not in Rome, but in Germany, under the guiding spirit—and sometimes the heavy hand—of Father Gaspar Schott. Schott slightly changed the name of the publication to *Iter Extaticum*, transforming the essence of the ecstatic heavenly journey, as Harald Siebert has noted, into more of a pilgrimage than a travel diary. The younger man also added his own pref-

ace to Kircher's work, and laced the book with his own notes, carefully set in italics to distinguish them from his mentor's text. And if the first edition of *Itinerarium Extaticum* excited controversy, the second edition takes a polemical stance from the outset (this was Schott's doing, rather than Kircher's). To the text itself, Schott, as self-appointed "scholiast," appends a point-by-point rebuttal of one of Kircher's critics, and in one of his notes, he cites the indexed heretic Giordano Bruno by name.

The citation comes in a highly specific context: discussing whether or not the Moon is possessed of an atmosphere. Bruno was, in fact, one of the first natural philosophers to discuss the Earth's atmosphere at length, describing it at one point, with his usual poetic verve, as a lung.¹³ Since Bruno saw the universe itself as an infinite system of constantly recombining atoms, he concluded that the Moon, composed of the same elements as Earth, should also exhibit the same basic structure, with continents, seas and an enveloping mantle of air.¹⁴

Kircher's *Itinerarium Extaticum* accepted most of these premises in one form or another; the research by his contemporary Evangelista Torricelli had gone far toward proving the existence of an atmosphere, and he himself was no less convinced than his angel Cosmiel that Earth and heaven were made of the same basic stuff. Schott bolsters Kircher's contentions about the Moon's atmosphere by naming some of the modern natural philosophers who agree with him:

The question, then, is: Does the Moon have an atmosphere, just as our Earth has one of its own? For many more recent scholars, after the discovery of the telescope, have identified a layer surrounding [the Moon] of air or a denser sort of aether, like Kepler, Maestlin, Galileo, Longomontanus, Giordano Bruno, David Fabricius, Antonio Maria de Rheita, Mario Bettini, Langrenius, Wendelin, Johannes Baptista Cysatus, and Scheiner; our Author [that is, Kircher] cited these last two in his Preface, and agreed with them.¹⁵

Bruno, then, is set comfortably, if somewhat anachronistically, among a group of modern astronomers (he died before the invention of the telescope). He may not appear explicitly as the Giordano Bruno who proclaimed the infinite size of the universe, but no one who read the heretic's opinions on the lunar atmosphere could do so without also taking in his larger ideas, ideas relevant, moreover, to the *Iter Extaticum*'s later discussions of the size of the universe and *panspermia rerum*. In effect, both Schott, by mentioning Bruno explicitly, and his Jesuit readers, by forbear-

ing to object to Bruno as an indexed author, had decided, tacitly but firmly, to prefer the free development of philosophical inquiry to the preservation of doctrinal purity, and this was the same decision that Kircher himself had made in writing his *Itinerarium Extaticum* in the first place.

As the vicissitudes of the *Iter Extaticum* demonstrate, the Society of Jesus had once stood at the forefront of research in natural philosophy; in the days when Christoph Clavius and Giordano Bruno were neighbors in Rome (as they were in 1576) and in the early days of Galileo's career. By the middle of the seventeenth century, however, the Fathers were beginning to feel the pressures of its religious restrictions. One way to alleviate these pressures was to ignore them, as happened to some extent at every stage in the publication of Kircher's book on cosmology; Dunel's mention of collusion was not out of place. Kircher was also known to publish his work without ever incorporating the *Revisores'* suggestions, further proof that his status within his order was privileged indeed.¹⁶

Fiction offered another means of escape from the pressures of hewing to an orthodox line of thought; by putting his ideas about cosmology into a dream vision, Kircher could argue, along with his *Revisores*, that the visions had nothing to do with factual truth. This was simply a more extreme version of reasoning *ex hypothesi*, as Galileo had been urged to do with Copernicus: discussing a controversial idea by insisting that it bore no relationship to reality.

Kircher also resorted on many occasions to self-contradiction, making a doctrinally acceptable point in order to argue its opposite in subsequent discussion. This tactic, interestingly, met with particular scorn from the *Revisores*, one of the proverbial lapses, like his bragging and his failure to incorporate suggestions, for which the Society's illustrious author was predictably accused in every *censura*—his own complaints about the jealousy of his peers seem as well-founded as their own complaints about his boasting.¹⁷

The decision to publish the second edition of *Iter Extaticum* in Germany also deflected some of the pressure on Kircher to hew to an orthodox line in matters of natural philosophy. As François Dunel had pointed out in 1657, Kircher's books implicitly promised his international readership the latest news from Rome. In the 1660s, Kircher made an arrangement with a Dutch publisher, Johann Jansson, to print all his future books in Protestant Amsterdam. The first product of their joint venture was the long-promised *Mundus Subterraneus* of 1665, although this volume, with its close connection to Pope Alexander VII, was also printed simultaneously in Rome (and it is the Roman edition, now preserved in the Vatican Library, that Kircher presented to the Pope).

Mundus Subterraneus developed the doctrine of *panspermia rerum* in more anecdotal detail than the *Iter Extaticum* without changing the basic substance of the argument. The *Revisores* who examined the vast manuscript of *Mundus Subterraneus*, far from protesting its content, could hardly contain their delight:

I found nothing that contradicted the faith of our Society, or that failed to contain sound doctrine; indeed, it was not without immense pleasure to my spirit that I perceived something in this work that the Supreme Creator had shut away in the astute creation of the subterranean world, disclosed now with truly Herculean labor, or, I might say more truthfully, angelic daring.¹⁸

As always, Athanasius Kircher's ultimate aim in this Herculean, angelic endeavor was to reconcile natural philosophy with Christian faith, a faith unharmed by his belief in an immense cosmos imbued with *panspermia rerum*, or, for that matter, in a terrestrial crust that rose and fell in slow cycles—for *Mundus Subterraneus* is the first book to mention a theory of plate tectonics, and has hence gained a much greater reputation in recent years as a work of science.¹⁹

This same work of reconciliation between faith and philosophy drove one of his last works, the *Ars Magna Sciendi* (published in Amsterdam in 1672, but written some years before). In this book, which tried to create a system of symbols to convey all of philosophy and theology by various combinations of twenty-seven pictorial signs, Kircher paid homage to his predecessors in such efforts, including the developers of memory systems—and here he includes Giordano Bruno, quite possibly referring to the works by Bruno that had been printed in Germany in 1617.

The Jesuit *Revisores* leveled sharp criticisms at the manuscript, not because Kircher had mentioned an indexed author, but because his symbolic system itself, to their mind, was impossibly cumbersome:

The work of Father Athanasius Kirker called the Great Art of Knowing [...] we do not judge as meeting our expectations, nor can it be published with any credit to the Society or the Author.

The system itself does not seem to provide what the author promises in his work *Mundus* [*Subterraneus*]. Neither does it seem that anyone could acquire any knowledge at all through this Art as it is presented by the author, let alone acquire it easily. This Art can only be

understood by someone who is already educated, and some things are expressed so obscurely and confusingly that not even an educated person will understand them.²⁰

To judge from the experience of Fathers Kircher and Schott, the presence of the censored writer Giordano Bruno in their bibliographies was not a matter of particular interest to most members of their Society, despite that organization's devotion to the theological purity and spiritual supremacy of the Roman Church. Indeed, the Jesuits' dedication to the progress of natural philosophy seems to be at least as powerful a motive behind their individual and collective actions, even when that progress brought on potential conflict with religious orthodoxy, whether imposed by their own *Ratio Studiorum* or by the strictures of the Holy Office. A scant two months after Galileo's condemnation, on August 9, 1633, the Jesuit astronomer Christoph Scheiner examined a new book written by his colleague Father Melchior Inchofer, *A Synthetic Treatise on the Motion or Immobility of the Earth and the Sun from Scripture and the Church Fathers* (*Tractatus Syllepticus de motu vel Statione Terrae et Solis ex Scriptura et SS. Patribus*). Both Scheiner and Inchofer had opposed Galileo bitterly, Scheiner in print on the issue of sunspots, and Inchofer behind the scenes as an examiner for the Inquisition at Galileo's trial. Nonetheless, when Scheiner came to Inchofer's militantly orthodox—and evidently timely—treatise, he advised revisions:

I have read the *Tractatus Syllepticus* [...] of Father Melchior Inchofer, and I found nothing against faith or good morals [...]; nonetheless, I would make the following considerations: The Author seems to assert too absolutely that the motion of the Sun and the immobility of the Earth are matters of Faith. These statements ought to be modified, because they are under discussion, and in fact they do not seem to involve matters of Faith at all [...]. I think that the same caution should be noted for the circular motion of the Sun, and the location of the Center of the Earth in the center of the universe.²¹

With readers like this, it is no wonder, perhaps, that the *Index of Prohibited Books* could not make Giordano Bruno go away, not even in the heart of the Catholic capital where he burned to death as a heretic, not even in the midst of the Counter-Reformation. The faith of many Jesuits was a faith large enough to include what we would now call scientific speculation, and their ways of furthering that speculation were many and varied, but firm nonetheless.

BIBLIOGRAPHY

Primary sources

- Bruno, G. "De immenso et innumerabilibus." In *Jordani Bruni Nolani Opera latine conscripta*. Vol. I, 2. Ed. F. Fiorentino. Naples: Morano, 1884. Reprint, Stuttgart/Bad Cannstatt: Frommann, 1962.
- . *Dialoghi filosofici italiani*. Ed. M. Ciliberto. Milan: Mondadori, 2000.

Secondary sources

- Gatti, H. *Giordano Bruno and Renaissance Science*. Ithaca NY: Cornell University Press, 1999.
- Michel, P.-H. *The Cosmology of Giordano Bruno*. Paris: Herrmann, 1973.
- Rowland, I. D. "Athanasius Kircher, Giordano Bruno, and the *Panspermia* of the Infinite Universe." In *Athanasius Kircher, the Last Man who Knew Everything*. Ed. P. Findlen, 191–206. New York: Routledge, 2004.
- Siebert, H. *Die große kosmologische Kontroverse: Rekonstruktionsversuche anhand des Itinerarium exstaticum von Athanasius Kircher SJ (1602–1680)*. Stuttgart: Franz Steiner Verlag, 2006.
- Sigurdsson, H. *Melting the Earth: the History of Ideas on Volcanic Eruptions*. Oxford: Oxford University Press, 1999.

NOTES

- 1 "Thus the Earth receives life-giving seeds from the Suns's orb / And by its motion tempers the seething heat of its rays," Bruno, *Opera latine conscripta* I, 2, 283.
- 2 *Raymundi Lullii Opera ea quae ab inventam ab ipso artem universalem, Scientiarum Artiumque Omnium Brevi compendio, firmaque memoria apprehendendarum, locupletissimaque vel oratione ex tempore pertractandarum pertinent. Ut et in eandem quorundam interpretum scripti commentarii*, Argentorati, sumptibus Haeredum Lazari Zetzneri, 1617. The book is mostly devoted, then, to Ramon Llull, himself a suspect author for the drafters of the *Index*. Bruno's works appear from pp. 662–786, and are followed by those of another suspect author, Henricus Cornelius Agrippa, a Protestant from Strasbourg, 1617, who would suffer greatly in the Thirty Years' War (starting in 1618); the city was annexed to Catholic France in 1681.
- 3 The classroom spaces of the Collegio Romano have belonged to Rome's first public high school, the Liceo Ennio Quirino Visconti, since the unification of Italy in 1870.
- 4 The reports of the Revisores are kept in the Archivum Romanum Societatis Iesu (henceforth ARSI), Ms 661, Censurae Librorum. The instruction to go ahead with printing is found on c. 33r:
 "Admodum Reverende Pater Noster Generalis [Goswin Nickel]
 Omnia quae censuimus corrigenda et emendanda in duobus dialogis Patris
 Athanasii Kircheri sunt iam correcta et emendata iuxta nostram Censuram
 In Collegio Romano 13 Novembris 1655
 Vestrae Pietatis in Christo Servus
 Celidonius Arbicio"

- 5 ARSI, Ms 661, c. 30r: "Cum itinerarium extaticum Patris Athanasii Kirker anno superiore in lucem editum fuisse non pauci graviter tulerint, eo quod in illo quam plurima contineantur a communi scholarum sensu abhorrentia, ita ut author somnia sua potius absque ullis probationibus in medium proferre, quam aliquid vera solida-que ratione nixum lectoribus proponere videatur; Nunc vero cum multi viri graves et docti qui se librum illum legisse testantur, Patres Revisores oscitantiae cuiusdam, aut certe nimias erga authorem conniventiae incusaverint, atque ex Patribus Assistentibus non nemo ex Theologiae Professoribus duo, Provincialis ipse aliique mirari se dixerint quod ista Romae probantur.
In Collegio Romano, 7 Maii 1657.
Admodum Reverendae Pietatis Vestrae
Servus in Christo et filius indignus
Franciscus Dunellus."
- 6 Siebert, *Die große kosmologische Kontroverse*.
- 7 François Dunel to Goswin Nickel, 7 May 1657, ARSI, Ms 661, c. 31 recto:
"...quod plura contineat contra bonam ac receptam in scholiis Philosophiam circa materiam primam, circa eductionem formarum ex materia, circa numerum elementarum, circa animarum essentiam, circa modum agendi corporum coelestium et alia huiusmodi.
...quod author more sibi consueto, quamvis saepe monitus, passim iactet sese tanquam qui solus naturae arcana penetraverit, despreti caeteris Philosophis quos dicit in abstractionibus Metaphysicis inutiliter operam tempusque consumere."
- 8 On this large subject, see, for example, Michel, *The Cosmology of Giordano Bruno*, 269–86; Gatti, *Giordano Bruno and Renaissance Science*, 99–126.
- 9 Michel, *The Cosmology of Giordano Bruno*, esp. 126–286; Gatti, *Giordano Bruno and Renaissance Science*, 128–42.
- 10 Michel, *The Cosmology of Giordano Bruno*, 99–126; Gatti, *Giordano Bruno and Renaissance Science*, 134–38.
- 11 See Rowland "Athanasius Kircher, Giordano Bruno," 191–206. My conclusions in that article need to be modified according to the more recent research by Harald Siebert; the present article is an initial step in that direction.
- 12 ARSI, Ms 661, c. 32 recto:
"Admodum Reverende Pater Noster Generalis
Legimus Iter Secundum Extaticum Patris Athanasii Kircheri in Tres Dialogos distinctum: et censemus posse imprimi, praevia tamen sequenti correctione
1.^o Deleantur quae dicit in secundo dialogo contra doctrinam Peripateticam de Materia Prima, et de Eductione Formarum substantialium: clarius explicet suam sententiam de numero elementorum, de quo satis confuse et inconstanter loquitur; et omittantur omnia verba in quibus se iactat, et Philosophis Peripateticis insultat,
In Collegio Romano 4 Maii 1657
Franciscus Le Roy
Franciscus Dunellus."
Celidonius Arbicio 8 [whose writing it is]."
- 13 Bruno, *La cena de le Ceneri*, Dialogue III, in *Dialoghi filosofici italiani*, 83: "tutta l'aria vaporoso e turbolento, il quale è rinchiuso negli altissimi monti, appartiene alla terra come membro di quella, o pur come l'aria che è nel pulmone ed altre cav-

ità degli animali” (all the vaporous and turbulent air that is enclosed by the highest mountains, belongs to the Earth as if it is a part of her, or like the air that is in the lungs and other cavities of animals)

See also Bruno, *De Immenso*, IV, 10, in *Opera latine conscripta* I, 2, 53:

“Circuit hinc igitur Telluris concita mundum

Interea in media nil regione putare,

Aerea, multum Vulcania regna vigere.”

(Thus it circles around the world of the Earth, and don’t think that it stays for the duration in the middle regions; it is present in the airy regions as well, and in the realm of Vulcan).

Ibid. IV, 14, (ibid., 76):

“Proinde mihi gemino venit aer significato,

Nam quo ut respirat Tellus, pars illius estque

Corporis [...]

Hic nostram facit ad vitam, hoc spiramus, et extra hunc

Non plus vivemus, quam, vulsi extra aequora pisces.”

(Next the twin significance of air comes to me, For as Earth breathes it, it is also a part of her body [...]; this works for our life, this is what we breathe, and outside of it we no longer live, like fish plucked from the water).

- 14 Bruno, *De Immenso*, VI, 6 (*Opera latine conscripta* I, 2, 181): “Sic quoque Luna suas sortitur in aethere partes” (thus the Moon, too, has part of her allotted to aether).
- 15 Gaspar Schott, note to revised edition of Athanasius Kircher, *Iter Extaticum*, 69 (the emphasis is Schott’s): “*Quaeritur igitur, an Luna suam circa se habeat atmosphaeram sicut Tellus nostra suam habet? Plurimi enim recentiorum post tubi optici usum agnoscunt circa ipsam aerem, aut densiorem aetherem, ut sunt Keplerus, Maestlinus, Galilaeus, Longomontanus, Jordanus Brunus, David Fabricius, Antonius Maria de Rheita, Marius Bettinus, Langrenius, Wendelinus, Joannes Baptista Cysatus, & Scheinerus, quorum duos ultimos citavit, adductis eorum verbis, Auctor noster supra in Praelusione Paraenetica, quibus ipse adhaeret.*” Bruno, of course, died before the telescope had come into use. Significantly, however, Schott—unlike many modern historians of science—clearly allies him with empirically-minded investigators.
- 16 See, for example, ARSI, Ms 661, c. 30 verso-34 recto, François Dunel to Goswin Nickel, May 7, 1657: “especially when experience shows that the Author, in the books he has published so far, has not always corrected everything that should have been corrected: (praesertim cum experientia constet [34r] authorem in libris hactenus impressis, non omnia quae corrigi debuerant, emendasse.)”
- 17 ARSI, Ms 661, c. 29 recto, censura of *Itinerarum Extaticum*: “In the meantime he commends his own learning too much” (Interdum nimis commendat suam doctrinam); 32r, censura of second edition of *Iter Extaticum*: “and all the words should be omitted in which he brags about himself and insults the Peripatetic Philosophers” (et omittantur omnia verba in quibus se iactat, et Philosophis Peripateticis insultat).
- 18 ARSI, Ms. 661, c. 321 recto: “Vidi ex commissione A. R. P. N. Iohanis Pauli Oliva Vicarii Generalis Societatis Jesu opus R. P. Athanasii Kirkeri eiusdem Societatis quod Geocosmi seu Mundi Subterranei nomine inscribitur, et nihil in eo reperi quod fidei nostrae institutis adversaretur, aut quod sanam doctrinam non continuerit: imo

non sine ingenti animi mei voluptate intuitus fere sum in hoc opere quicquid in subterrestris mundi Opificio supremus Artifex peritissimo clauserat Herculeo sane labore, vel ut verius dicam, Angelico prope ausu reclusum [...] Franciscus Maria Leone Societatis Jesu.”

19 Sigurdsson, *Melting the Earth*.

20 ARSI, Ms 661, c. 135r:

“Admodum Rev.de in Christo Pater Noster

Opus Patris Athanasii Kirkeri, inscriptum [*Ars Magna Sciendi*] quod Pietas Vestra nobis revidendum commisit, non censem expectationi respondere, aut cum Societatis autorisve existimatione in Lucem edi posse.

Primo: quia reipsa non videtur praestare, quod eo in opere Mundo pollicetur autor. Neque enim apparet, per eam artem, ut ab autore proponitur, posse quenquam absolute, multo minus facile, ad ullam pervenire scientiam: eum neque ars ipsa nisi ab homine iam erudito possit intelligi; immo quaedam in ea tam obscure ac perplexe dicantur, ut ne quidem a doctis intelligantur [...]

Collegio Romano 15, Maii 1660.

Michael Bassanus

Franciscus Dunellus

Martinus Leytanus

Franciscus de Sotelo

Franciscus Le Roy.”

21 ARSI, Ms 661, c. 194 recto:

“Tractatum Syllepticum de motu vel Statione Terrae et Solis ex Scriptura et SS. Patribus, P. Melhioris Incofer, legi; in eoque nihil contra fidem aut bonos mores deprehendi; sed magnam potius modestiam, et eruditionem adverti: unde dignum iudico qui in publicum edatur; cum ut veritas pateat, tum auctori occasio praebeatur plura elucubrandi. Romae in domo Professae 1633. 9. Augusti.

Ita ego sentio, Christophorus Scheiner

Consideranda autem putarem sequentia.

Pag. 34, ad initium. Auctor nimis absolute videtur asseverare, Solis motum et Terrae status esse de Fide. videntur modificanda, cum sint in Quaestione; et re vera de Fide non videatur esse. Oporteret item paucis indicare, quidnam sit esse aliquid de Fide. Similia de Motu Solis circulari, et de Centro Terrae in medio Universi animadvertenda censeo.”

FRANÇOIS QUIVIGER
From Paris to Rome, Hamburg and London.
Aspects of the Afterlife of Giordano Bruno
in the Twentieth Century

L'action se passe en l'année jubilaire, sur le 'Champ de Flore', à Rome, le 17 février 1600.

Journée orageuse & lourde. Une foule fiévreuse s'intéresse aux derniers préparatifs d'un bucher. On entend au loin le chant monotone des litanies & la risée insultante du peuple au passage du supplicé, mêlés de cris de mort.

Bientôt arrive le cortège, à la tête duquel se trouvent: deux Pères de velle & un Père de Saint-Jérôme... puis, Giordano Bruno en san benito. Suivant de près, vient le défilé pontifical en grande pompe... Le pape & sa suite s'installent dans les Tribunes couvertes de tapis précieux. On présente à Giordano Bruno des crucifix & autres emblèmes qu'il repousse avec une douceur non exempte d'énergie...

Tout à coup il aperçoit le bûcher.

GIORDANO BRUNO: Heure attendue...—spectacle horrible offert à ma vue...—

LE CHŒUR INVISIBLE: "Tu vas mourir pour la Vérité!"

GIORDANO BRUNO: (*répétant*) Vérité!

.....

Supplice infâme!...brûler le corps pour sauver l'âme!—

LE CHŒUR INVISIBLE: "Viens ! tu as acquis l'Immortalité!"

GIORDANO BRUNO: (*répétant*) Immortalité!

.....

Rêve de ma vie!...—Finir ainsi par cette infamie!...—

LE CHŒUR INVISIBLE: "Et tu vivras pour l'Eternité!"

GIORDANO BRUNO: (*révélé*) Eternité! (*sombre*) Vision funeste...—
(*se reprenant avec un éclair d'espoir*) Vision céleste! Oui... Céleste—
(*Il monte courageusement au bûcher...*)

(*Le ciel se couvre de nuages menaçants... les éclairs jaillissent de toutes parts... le tonnerre gronde... la scène s'obscurcit.*)

(*Giordano Bruno, sur le bûcher, exulte.*)

Monte, monte, mon âme épurée,—va rejoindre ta place consacrée...—Unis-toi à ton Univers!—laisse là ce monde pervers.—Et, qu'enfin idéalisant ton rêve,—qu'en triomphe ton rêve s'achève;—consacre ton œuvre par ta mort;—Mort! ô Mort! sublime sort!—

(*les forces le trahissent peu à peu*)

Monte!...— Monte!...— Monte!...— Je m'élève à l'Infini... je fends les Cieux!—"Mourir pour vivre"...— Monde ... ad...— (*Il expire.*)

(*Un grand coup de tonnerre & la foudre tombant coupent la dernière phrase de Giordano Bruno*)

(*Le Pape & sa suite se lèvent épouvantés... car, à la place du bûcher se dessine & se dresse altier le monument à Giordano Bruno sur lequel darde un brillant rayon de soleil illuminant la tête du Martyr*)

(*Débandade générale*)

RIDEAU.—

FIN DE L'ŒUVRE.

CHARLES CLAIR,

*Giordano Bruno ou le Chevalier errant de la philosophie.*¹

The excerpt selected for this volume comes from the second edition of the musical drama *Giordano Bruno ou le Chevalier errant de la philosophie*. The text and two of its copies are loquacious witnesses to the movements and migration of ideas surrounding the afterlife of Giordano Bruno. The changes from the first to the second edition result from the encounter of the author with the early twentieth-century political and religious realities of the figure of the philosopher. Furthermore, the two copies used for this paper migrated from France to Italy, Germany, and England, together with a Brunian library of circa 350 titles—recording the changing images of the philosopher in scholarship, history, and popular culture from his rediscovery in late eighteenth-century Germany to the 1920s. Virgilio Salvestrini, author of the *Bibliografia Bruniana*, assembled this polyphonic collection, which Aby Warburg acquired in 1929. After Warburg's death in December 1929 and the migration of the Warburg Institute to England in 1933, this Brunian core, regularly updated by new acquisitions, sustained the research of Frances A. Yates, which in turn led to a dramatic re-orientation of the scholarly image of the philosopher. Thus, rather than focusing on the specific circumstances of Charles Clair, I will set the final scene of his musical drama in three concentric contexts: firstly, the text itself and the image of Bruno in fiction, scholarship, and popular culture; secondly, the collection with which it came to London; and thirdly, its relation to Brunian studies at the Warburg Institute.

Charles Clair published his *Giordano Bruno ou le Chevalier errant de la philosophie* twice. The first edition is the *princeps* of 1914. The copy of the second edition, kept in the Warburg Library and dated 1925, is a numbered copy—No. 297—printed for Virgilio Salvestrini and signed and dedicated by the author. The second edition also contains a preface by Paul Fort (1872–1960). Paul Fort was a friend of the author—at least, since 1914—as suggested by a copy of his *Nocturnes* (1914) which recently surfaced on the market. It bears a dedication to Clair. Paul Fort was also one of the most important poets of his time, as well the founder and director of the review *Vers et Prose*, which published such luminaries as Rimbaud, Verlaine, Mallarmé, Lautréamont, and Guillaume Apollinaire. His *avant-propos* to Clair's *Giordano Bruno* thus stands out as a strong and eloquent endorsement from a respected and charismatic figure of French Letters.

Hardly anything is known of Charles Clair outside the evidence provided by these two editions. He is absent from the *Dictionnaire de Biographies Françaises* and all musical and literary bibliographies I have consulted. His *Giordano Bruno* is the only work he ever published. No score accompanies the text, and no evidence has yet surfaced to confirm whether his musical drama was ever performed. Library catalogues sometimes confuse our author with a Jesuit priest who lived between 1835 and 1899, and who wrote on religion and religious art—an unlikely candidate for the authorship of a musical drama on Giordano Bruno. Our Charles Clair held the Ancient-Régime title of Comm. Visconte, with which he signed the letter to the Pope accompanying his text. There he refers to the favors his family has received from Pope Pius X and alludes to a telegram he had already sent from Bordighera in 1912, announcing the imminent completion of the text.²

Divided in four acts, each act subdivided into *tableaux*, Clair's musical focuses on the early and final years of Bruno's wandering life from Naples (Act I), to Venice (Acts II & III) and Rome (Act IV). Unlike most historical fictions, the first edition includes notes with references to a bibliography of eight monographs on Bruno by Bartholmèss, Kuhlénbeck, McIntyre, Frith, Berti, Gentile, Brunnofer, and Mariano. The subtitle of the musical, *Le Chevalier errant de la philosophie*, originates from Pierre Bayle's observation that Bruno engaged in philosophical jousting wherever he travelled.³ With Bartholmèss (1847), however, the image of Bruno as a wandering knight alluded not only to his travels, but also to his powerful imagination and to the chivalrous values of courage and audacity which he practiced throughout his life and writings—a portrait somehow reminiscent of Cervantes' *Don Quixote*.⁴ Those who wrote fiction on Bruno uni-

versally adopted this heroic conception which culminated in his tragic death as a martyr of free-thought. Among the examples collected by Salvestrini and now present in the Warburg Library are two novels,⁵ six plays,⁶ and two musical dramas composed between the 1870s and 1920s.⁷

Although Bruno had, in these years, become an anticlerical rather than a Catholic hero, his fictional representations included numerous Christological allusions,⁸ ranging from the scene of betrayal which authors attribute to various Judas-like figures—Mocenigo or an old friend or a disciple jealous of his fiancée's affection for the philosopher—to his last moments. Sometimes the words of Christ are placed in Bruno's mouth. Bruno's pantheism, a recurring theme of nineteenth-century scholarship—expressed through a hymn to nature in Clair's drama—also features prominently.

Bruno's martyrdom began in the inquisition jails. Like most authors, Clair assumed that Bruno was tortured. Interrogated by the Pope, Bruno points out that nine years of torture have not weakened his faith and that he even prefers death to the dignity of the cardinal's position.⁹ Other plays, such as that of José Fola Igúrbide, feature entire scenes taking place in the Inquisitional torture chamber.¹⁰ Scheffer's novel also alludes to torture, but best of all is Davide Levi, who quoted passages from the *Furori Eroici* to describe Bruno's state of mind during torture sessions.¹¹

In this context, and to anyone remotely familiar with the image of Bruno in *Risorgimento* Italy, the first edition of Charles Clair's drama begins with a singular piece of earnest wishful thinking. It is a letter to Pope Pius X, dated July 13, 1913, written from a luxury hotel near Lugano (Stella d'Italia, San Mamette), in which the author apologizes for delays in sending him his text. Clair writes that it is a question of Truth, a question of rehabilitating a man so calumniated by the sixteenth century. The letter appears in the first edition in French and Italian versions. In the second edition, it features only in French.

According to a manuscript note in the first edition of the Warburg Institute copy, "The author was excommunicated after reception of this volume."¹²

That Clair was unaware of the significance of Giordano Bruno in Italy would seem confirmed by the fact that neither the Pope nor the monument of the Campo de' Fiori are present in the final scene of the first edition. Furthermore, unlike most works of fiction of the time on Bruno, the first edition of Clair's drama bears little traces of anticlericalism. The sixty-three footnotes which accompany the first edition seem to convey the author's earnest desire to provide an accurate historical image of the philosopher. The Visconte Clair somehow assumed that his musical drama

would incline the severe and conservative Pius X favorably towards Giordano Bruno. The excommunication must have taken place shortly after the reception of the drama and before August 22, 1914—the date of Pius X's death. The second edition includes only the French version of the letter to the Pope, followed by a general dedication:

“Without false modesty, I dedicate my humble work to those who, following an idea, raise themselves to the peak of this idea—even if everything should crumble under their feet—for they should never give up supporting this idea, even to the sacrifice of their life; for, acting in such a way, they demonstrate that they prefer the voice of Beauty to that of Religion.”

To this, Clair added a quotation from the historian Jules Michelet, “And for whom did I write this / If not for you / O eternal justice?”¹³

Thus, this encounter with the controversial historical image of the philosopher not only brought about the excommunication of the author, but undoubtedly inspired him to modify the final scene. In the scenic indications, he added the episode mentioned in Schioppus's well-known letter, according to which Bruno declined a crucifix presented to him before reaching the stake.¹⁴ In the first version, as the philosopher expires on the pyre, the thunder roars while the curtain falls slowly. In the second edition, after the thunder, the monument to the philosopher on the Campo de' Fiori rises in place of the stake, and a ray of light illuminates Bruno's head. The Pope and his suite run away, seized by fear and horror.

Planned since 1876, the monument of the Campo de' Fiori had been a thorn in the side of the Church and prompted many Catholic writers to engage in polemics against Bruno's admirers.¹⁵ Indeed, the vehement tone of this literature testifies to the most vibrant afterlife of the philosopher, whose figure had at the time become a rallying banner for free-thinkers, liberals, anticlericals, and freemasons. One Catholic apologist even alludes to attempts to change the Christian Era to the *Era Bruniana*, beginning in 1600.¹⁶ The *Dialoghetti familiari* [...] *sopra la vera storia di Giordano Bruno* present the philosopher as a materialist, a sensualist, and a womanizing monk, as well as a Darwinist who also believed in metempsychosis. Written after the unveiling of the monument, the *dialoghetti* add that a strong military presence was required to contain a mostly non-Roman crowd screaming anticlerical slogans.¹⁷ The Catholic authorities perceived the monument as an open insult to religion, as well as a personal offence to the Pope.¹⁸ Bruno's apologists, on the other hand, hailed him as a sym-

bol of and martyr to the forces of reason, science, and progress against obscurantism, religion and repression.¹⁹ In this context, Clair's musical drama was unlikely to please Pope Pius X, whose pontificate was marked by strained relationships with French secular authorities, behind which he saw a Masonic plot against the Church. Furthermore, the Pope had strongly opposed the doctrine of modernism, which he associated with pantheism, another trend emblemized by the historical image of Bruno and further emphasized in Clair's drama.²⁰ It is only much later, in 1992, that Pope John Paul II would express regret for the condemnation of the philosopher. In the 1910s, the monument was still seen as a provocative anticlerical emblem. Onstage, it had already featured in the final scene of the very anticlerical drama by José Fola Igúrbide, before reappearing in Clair's musical in retaliation for his excommunication.²¹ Thus, the dedication letter, surely perceived in Rome as an insolent provocation, realigned Clair's idea with the mainstream conception of Bruno as a martyr to free thought and a herald of modern times.

We do not know whether Warburg read Clair's musical drama. He would have appreciated Clair's vision of Bruno and his use of pagan symbolism. In his preface, Paul Fort compares the Dominican habit of the philosopher to the fleece of Nessus. Indeed, the most striking aspects of the last scene are the themes of ascension and purification, a sort of pyre of Hercules concluded by a final transfiguration into the monument of the Campo de' Fiori. Furthermore, Warburg surely would have approved of Paul Fort's comparison of the *poésie mélrique*—a genre inspired from Ancient Greece and adopted for Clair's *Giordano Bruno*—with the soft floating dresses of antique nymphs.²²

Warburg's interest in Bruno followed the late-nineteenth-century vision of the philosopher as presented by scholarship, fiction, and by his monument, with its eight medallions emblematic of the long series of battles—in the fight between reaction and progress; among religion, superstition, and reason; and between the enemies and champions of freedom of thought.²³ This theme was fundamental for Warburg and had served as one of the backbones of his library, which he described with the following aphorism in 1927: "The Library as a weapon of enlightenment against orthodox dogmatism—Luther, the French Revolution, and sciences—liberating the right to think for oneself."²⁴

By 1929, Warburg would have surely added Bruno to this brief list of heroic figures and moments. Bruno's writings had prompted much energy and interest, especially in the last months of Warburg's life.²⁵ A few weeks

before he died, in a letter to Karl Vossler dated October 12, 1929, Warburg explains at length the reason for his most recent trip to Italy (Bologna, Rimini, Perugia, Rome, and Naples) and his absence from Hamburg for nearly ten months. He wanted to bring together many strands of research—to find links, a chain of deductions, in order to develop a new method for the teaching of art. Together with Gertrud Bing, Warburg was able to collect material for an atlas of images to document the function of expressions and to develop a new theory of the function of human image-based memory. He needed to research Giordano Bruno as a thinker who, he writes, had fascinated him for forty years.²⁶

Writing from Rome in November 1928, Warburg invited Leonardo Olshki to give a lecture on Bruno. He wanted him to talk about the function of classical mythology in Bruno's thought, as he hoped that it might demonstrate a link between pagan image-based thought and modern symbol-based thought. A few days later, on December 13, 1928, Warburg was looking forward to meeting Giovanni Gentile, the then editor of Bruno's complete works. For him, he adds, Bruno is the pivotal thinker of the sixteenth century, an 'antenna,' a receptor of European thought. Things, however, did not progress as smoothly as expected; on December 18, 1928, he complains of his "incredibly difficult Giordano Bruno studies," which are gripping, surprising, but proceed only slowly.²⁷

The following days are characterized by feverish activities. He reports that Ernst Steinmann wants him to lecture in the large hall of the Hertzi-ana. He accepts, but insists on using pin boards with photographs, not slides. He has reached a crossroad "where the attempt by the historian of pure thought meets the attempt by the historian of pure un-reason" in Giordano Bruno. Bruno's "strange ambivalence" has become clear to him only now. He has to travel to Naples and Nola [...], wants to give a lecture on Bruno as a thinker in images, and adds that, without Gertrud Bing's assistance, he would never have been able to proceed with his research, the result of which is the "Kulturwissenschaftlicher Typen Atlas."²⁸

His projected essay approached Bruno not as a wandering knight, but as Perseus, the winged slayer of Medusa. The projected title runs as follows: *Perseus oder energetische Aesthetick als logische Funktion im Geschäfte der Orientierung bei Giordano Bruno.*

It is in this context that Warburg acquired, with the aid of Leonardo Olshki, a Library of Brunian studies that was initially assembled by Virgilio Salvestrini (1873–1954).²⁹ Salvestrini was a studious bookseller whose shop, on Via XXIX Maggio, in front of the University of Pisa, was frequented by students and professors.³⁰ The Salvestrini books—150 titles

of which are now available online—include the main nineteenth-century editions of the complete works, as well as the principal studies on the philosopher's life and thought. Salvestrini also collected various pamphlets and occasional papers echoing the intense controversies surrounding the erection of the Campo de' Fiori monument, unveiled on June 9, 1889.

Warburg died before he could make use of this freshly acquired material and complete these projects. The remains are sparse notes in the K.B.W. Tagebuch which he took to Italy, as well as a folder entitled "Giordano Bruno," kept in the Warburg Institute archive, which contains some leaves of notes and sketches.³¹ After the migration of the Warburg Institute to England in 1933, the library continued acquiring Bruno material, especially from the late 1940s onwards when Frances A. Yates, who had already encountered the philosopher in her *John Florio* (1934), began the research that would produce her two most influential books: *Giordano Bruno and the Hermetic Tradition* (1964) and *The Art of Memory* (1966).

Frances A. Yates's intellectual program intersected rather than merged with Warburg's own orientations. Even if one of the main thrusts of her research on the Hermetic tradition aimed at showing the irrational magical foundations of the scientific revolution, she had little interest in the philosophical questions which occupied Warburg. She saw herself as a cultural historian, and her inner certitudes seem to have leaned towards mysticism.³² When she wrote histories—be they histories of the hermetic tradition or the art of memory—the Renaissance and early Baroque periods, rather than the present, were her points of departure. Frances A. Yates's studies on Giordano Bruno—and, in particular, his mnemonic works—were indebted to Warburg's posthumous influence, as much as to the Brunian presence brought about by the Salvestrini books. Her research, nevertheless, led her to propose a radically different image of Bruno, as a figure turned towards the past rather than the future, a Renaissance magus, the swan song of an imaginary ancient tradition, and not a herald of modernity.

Now, the impact of Yates's vision of Bruno as a Renaissance magus is waning. However, the image of the philosopher as a herald of modern times, an intermediary between the Ancient and Modern worlds, is growing in popularity again. As observed recently by Hilary Gatti in a review of twentieth-century Brunian scholarship: "Above all, it seems that the celebratory year [2000] has had the effect of developing a renewed consciousness of the importance of the Nolan philosopher as representing a significant turning point towards modernity in its multiple facets and trends."³³ Thus, while the imaginary Bruno on the musical stage was singing "mourir pour

vivre,” his afterlife, on the very shelves which preserve this scream, continues prospering through his Protean images in scholarship and in popular culture.

BIBLIOGRAPHY

Most texts quoted here are available online on the joint web site of the Warburg Institute and the Centro Internazionale di Studi Bruniani “Giovanni Aquilecchia” (Istituto per gli Studi Filosofici). See:

<http://warburg.sas.ac.uk/library/digital-collections/giordano-bruno>

Primary sources

Anonymous, *Dialoghetti familiari tra un imbianchino e riquadratore di stanze fiorentino ed un signore romano sopra la vera storia di Giordano Bruno*. Rome: Tipografia S. Lucentini, 1889.

Balan, P. *Di Giordano Bruno e dei meriti di lui ad un monumento: saggio storico popolare*. Bologna: Società Tipografica, 1888.

Barbieri, L. *Giordano Bruno e il suo monumento: conferenza tenuta nella sede dell'Associazione operaia Maria Immacolata*. Naples, 1889.

Bartholmèss, C. *Jordano Bruno*. Paris: Ladrangé, 1846.

Bartolucci, A. *Giordano Bruno*. Santarcangelo: Tipografia Casali, 1889.

Bayle, P. *Dictionnaire historique et critique*. Amsterdam: Brunel, 1744.

Borngräber, O. *Giordano Bruno: das neue Jahrhundert. Eine Tragödie und Ouvertüre zur neuen Zeit*. Leipzig: Eugen Diederichs, 1901.

Clair, C. *Giordano Bruno ou le Chevalier errant de la philosophie*. Paris: Maurice Senart, 1914.

———. *Giordano Bruno ou le Chevalier errant de la philosophie*. Paris: Imprimerie nationale, 1925.

Fola Igúrbide, J. *Giordano Bruno: drama en cinco actos divididos en quince cuadros*. Barcelona: Estab. tip. de F. Costa, 1912.

Holitscher, P. *Giordano Bruno: historisches Drama in 5 Abteilungen*. Stuttgart: Süd-deutsches Verlags-Institut, 1898.

Kolbenheyer, E. G. *Heroische Leidenschaften: die Tragödie des Giordano Bruno in drei Teilen*. Munich: Georg Müller, 1929.

Levi, D. *Giordano Bruno, o, Le lotte del pensiero: dramma in cinque atti*. Rome: Edoardo Perino, 1889.

Manzoni, R. *La mente di Giordano Bruno*. Locarno: Tipografia Mariotta, 1889.

McIntyre, J. L. *Giordano Bruno*. London, New York: Macmillan, 1903.

Plumptre, C. E. *Giordano Bruno: A Tale of the Sixteenth Century*. London: Chapman & Hall, 1884.

Schefer, L. *Göttliche Komödie in Rom*. Milan: Società editrice Sonzogno, 1904.

Scotino, F. *Giordano Bruno: scena drammatica*. Naples: Stabilimento tipografico Raimondi, 1870.

Warburg, A. “Giordano Bruno.” Ed. M. Ghelardi and M. Targia. *Philosophy and Iconology: Cassirer Studies* 1 (2008): 16–58.

———. *Tagebuch der Kulturwissenschaftlichen Bibliothek Warburg*. Ed. K. Michels and C. Schoell-Glass. Berlin: Akademie, 2001.

Secondary sources

- Berggren, L. *L'ombra dei grandi: monumenti e politica monumentale a Roma (1870–1895)*. Rome: Artemide, 1996.
- Canone, E. Bruno *Redivivus: momenti della fortuna di Giordano Bruno nel XIX secolo*. Pisa: Istituti editoriali e poligrafici internazionali, 1998.
- Forbes, F. D. A. *Life of Pius X*. London: Washbourne, 1918.
- Gatti, H. “Frances Yates’s Hermetic Renaissance in the Documents held in the Warburg Institute Archive.” *Aries* 2, no. 2 (2002): 193–210.
- . “The State of Giordano Bruno Studies at the End of the Four-Hundredth Centenary of the Philosopher’s Death.” *Renaissance Quarterly* 54, no. 1 (2001): 252–61.
- Mann, N. “Denkenergetische Inversion: Aby Warburg and Giordano Bruno.” *Publications of the English Goethe Society* 72 (2003): 25–37.
- Salvestrini, V. *Bibliografia delle opere di Giordano Bruno*. 2nd (posthumous) edition, by L. Firpo. Florence: Sansoni, 1958.
- Spampanato, V. *Documenti della vita di Giordano Bruno*. Florence: Leo S. Olschki, 1933.

NOTES

- 1 Clair, *Giordano Bruno ou le Chevalier errant* (1925), 83–87. Full text available at: <http://warburg.sas.ac.uk/mnemosyne/Bruno/pdf/1802234462.pdf>
- 2 Clair, *Giordano Bruno ou le Chevalier errant* (1914), unpaginated dedication; Clair, *Giordano Bruno ou le Chevalier errant* (1925), xiii. Bordighera is a luxury resort on the Ligurian Coast.
- 3 Bayle, *Dictionnaire*, I, 680. See Eugenio Canone’s introduction to Canone, *Bruno Redivivus*, xx–xxi.
- 4 Bartholmæss, *Jordano Bruno*, II, 3; see also McIntyre, *Giordano Bruno*, 52.
- 5 Plumptre, *Giordano Bruno*; Schefer, *Göttliche Komödie in Rom*.
- 6 Scotino, *Giordano Bruno: scena drammatica*; Holitscher, *Giordano Bruno: historisches Drama in 5 Abteilungen*; Levi, *Giordano Bruno, o Le lotte del pensiero*; Borngräber, *Giordano Bruno: das neue Jahrhundert*; Fola Igúrbide, *Giordano Bruno*; Kolbenheyer, *Heroische Leidenschaften*.
- 7 Bartolucci, *Giordano Bruno*.
- 8 See, e.g., Levi, *Giordano Bruno*, 15, 124; Fola Igúrbide, José, *Giordano Bruno*, 38, 87 (Agony in the Garden). Best is undoubtedly Scotino’s observation: “Da molti il Bruno è salutato il Cristo della Scienza...” in Scotino, *Giordano Bruno*, 16.
- 9 Clair, *Giordano Bruno ou le Chevalier errant* (1925), 73.
- 10 Fola Igúrbide, *Giordano Bruno*, 50sq.
- 11 Levi, *Giordano Bruno*, 74, 93.
- 12 Clair, *Giordano Bruno ou le Chevalier errant* (1914), Warburg copy: “Dopo questa letterà il Comm. Visconte Clair di nazionalità francese fù excommunicato («excomunicazione maggiore»).”
- 13 Clair, *Giordano Bruno ou le Chevalier errant* (1925) xi.
- 14 Spampanato *Documenti*, 202.
- 15 Berggren, *L'ombra dei grandi*, 123.
- 16 Balan, *Di Giordano Bruno*, 14.

- 17 *Dialoghetti familiari tra un imbianchino e riquadratore di stanze fiorentino ed un signore romano sopra la vera storia di Giordano Bruno*, 10–12, 22.
- 18 See, for instance, Barbieri, *Giordano Bruno*, 7. “... io vedo una sfida sacrilega al Papato, un insulto alla Religione cattolica che segna la decadenza della Italia moderna e il principio di una nuova barbarie.”
- 19 See, for instance, Manzoni, *La mente di Giordano Bruno*, 6.
- 20 See Forbes, *Life of Pius X*, 124–25. See 90 sqq. for the alleged Masonic conspiracy.
- 21 Fola Igúrbide, *Giordano Bruno*, 88.
- 22 Clair, *Giordano Bruno ou le Chevalier errant* (1925), ix. The subtitle of the first edition reads “Opéra historique en 4 actes et 7 tableaux”; in the second edition, it has become: “Poème mélique et musique.” Melic poetry is a kind of free verse for musical declamation. The changes from the first to the second edition are mainly cosmetic. Most of the original text, initially composed in alexandrine verses and presented as such in the first edition, is merely laid out as prose in the second edition.
- 23 See Berggren, *L’ombra dei grandi*, 175 f. The medallions include the figures of Hus, Wycliffe, Servet, Paleario, Vanini, Ramus, Campanella, and Sarpi.
- 24 “Die Bibliothek als Aufklärungswaffe gegen die orthodoxe Dogmatik entstanden: Luther; Französische Revolution; Naturwissenschaften; Befreiung der denkenden Selbstverantwortlichkeit.” Warburg Institute Archive (abbreviated as WIA) III 12–6-1, fol. 25. (25 December 1927).
- 25 Mann, “Denkenergetische Inversion,” 25–37.
- 26 Warburg, Letter to Karl Vossler, dated 12 October 1929. Warburg Institute Archive, General Correspondence, WIA GC/24737.
- 27 Warburg, *Tagebuch*, 390.
- 28 Warburg, Letter to Toni Cassirer, dated 6 March 1929. Warburg Institute Archive, Aby Warburg General Correspondence, WIA GC/22737. Available online at <http://calmview.warburg.sas.ac.uk/calmview/>
- 29 See Warburg’s note to his copy of Salvestrini’s *Bibliografia Bruniana I*: “Die v[on] mir im Winter 1929 in Rom v[on] Olschki erworbene Bruno-Bibliothek entstammt – wie ich nachher erfuhr – aus d[em] Besitz von Salvestrini, dem V[er]f[asser] der *Bibliografia Bruniana*.” (The Bruno-Library which I have acquired in Rome in 1929 from Olschki used to be—as I have learned later—the property of Salvestrini, the author of *Bibliografia Bruniana*.)
- 30 See Giovanni Gentile’s preface to the first edition of *Bibliografia Bruniana*, as well as Luigi Firpo’s introduction to the second edition (Florence, 1958, 13f).
- 31 Warburg Institute Archive, III. 121. 1.1. Published by M. Ghelardi and Giovanna Targia, as Warburg, “Giordano Bruno,” 28–58.
- 32 Gatti, “Frances Yates’s Hermetic Renaissance,” 193–210.
- 33 Gatti, “The State of Giordano Bruno Studies,” 260.

PART 5

Visibility of the Invisible:
About the Sculpture *Giordano Bruno*
by Alexander Polzin
[2008]

DURS GRÜNBEIN
Flame and Wood
A Speech on the Occasion of the Unveiling of
a Giordano Bruno Monument in Berlin

Mysterious are the ways of artists. What might make a young Berlin-based sculptor anno Domini 2008 honor the philosopher Giordano Bruno with a sculptural monument? You quickly realize, when talking to Alexander Polzin that this cannot just have been about commissioned art. The lonely Dominican monk must have pulled him in with a great force of attraction. It is quite possible that Bruno reminded Polzin of the cosmic loneliness of mankind in the endlessness of space; a certain nerve of his will have been tweaked. Otherwise, he would not have journeyed to Nola, a small town within seeing distance of Mt. Vesuvius. This is where Bruno was born and it is here that—at Polzin's supplication and with the blessings of the local authorities—the unique archetype of the wooden sculpture in memorial of the town's great lost son has been erected in the town hall. Also playing a part in the genealogy of Polzin's project is the Central European University in Budapest, the educational institute founded with aid from the billionaire financial trader George Soros. They approached the artist with an open request for a freestanding, eye-catching sculpture which they intended to erect in a prominent location at the university. Polzin said he did not have to think long at all; indeed, Giordano Bruno occurred to him spontaneously. Overwhelmingly unerring and yet unusual enough, the heretic easily serves also as emblematic figure of a young, independent Europe. And because we are dealing with mysterious ways, we discover that Polzin was encouraged to pursue his project by none other than the playwright Heiner Müller, who himself had intended to write a play about Giordano Bruno but died before having the chance to do so.

The dramatist's fantasy was very much taken with the notorious Renaissance figure: this man who had once scraped around Shakespearian London, applying in vain for a teaching position at Oxford. You slip easily into daydreams when you imagine the philosopher in his cilice cowl on his way to the Globe Theatre "passing taverns, whorehouses, murderers' dens," as Müller wrote. We know that Bruno was in Wittenberg, the center of the

Reformation, where he eulogized Luther. In Prague, he communicated his theses against Euclidian geometry to Emperor Rudolf II, Patron of the arts and science. He traveled to Toulouse, Avignon, Paris, Zurich, and Geneva. Strangely, it seems it is only from Budapest (come to think of it, Berlin, too), a collection of muddy huts on the edge of the great thoroughfares at the time, for which we do not have documentary evidence of his having passed through. This itinerant monk crisscrossed a Europe divided by confessionalism as never before, ever wary of all local strains of Christian faith—for it was perilous being a Christian back then. He traveled thousands of kilometers of road, mostly on foot, up to the point they locked him up in a cage in Venice. Thus, marked the beginning of his eight-year long battle with the forces of the Inquisition; a battle that he could not, and indeed did not want, to win. This fiery, early enlightener's quiddity is captured in his statement to the cardinals: "You pronounce this sentence against me with greater fear than I receive it." In the jubilee year of 1600 Anno Domini, Bruno was burnt at the stake in a public event; the proceeding serving as salutation from a victim of the raging Counterreformation to the new century.

Was it the legend of the heretic and heroic intellectual that attracted the sculptor? Or, rather, was it the life of the poet and the brilliant natural philosopher? I will not pester Polzin for a definite answer. I am simply content with the chronicle of his European-wide project. His act of memorialization was for a very solitary mind behind which no institution ever stood, no alma mater, no academy of sciences. Yes, there is a rather forceful monument to Bruno in Rome and tourists cannot help but notice it. It stands on the Campo de' Fiori, the site of Bruno's execution, where there is still today (just as in those time), a flower market. Bruno's hooded head hanging, his penetrating gaze falls down on the uninvolved around his feet. The statue speaks to the mute protest against the prevailing indifference as well as a solemn vigil against the sleep of reason and the quotidian thinking that continually reinforces presumptions about reality and one-dimensional perspectives of the world.

Alexander Polzin's work, a sort of recompense to its subject, is a composition of quite a different nature than the Roman memorial of 1889, with its vivid relief representations done in what is clearly an 'historical painting' style. By choice or by chance, Nola, Budapest, and Berlin are the locations of Polzin's restitutions. In Berlin, the approach was notably different. It required a lot of persuasion in many a backroom to bring the unveiling to fruition. I suppose only people well acquainted with Polzin's work—

with his highly idiosyncratic form of memorial art, his gentle insistence, and his ability (every now and then) to go through walls—will completely grasp the exotic moment. If I am not mistaken, that is what this is about: to make a statement right here, where all statements are neutralized in transience and go up together in smoke. Making a statement in contraction to the possible question, before there is a chance to retract the question—knowing all too well how quickly all possible answers would be drowned out by the general clatter of feet and fleeting hubbub of voices that (as it must be said) characterize public spaces today. It is not an exaggeration to say that no site could be more alienating than the one chosen: Giordano Bruno in Berlin? A sculpture on permanent display at an entrance to the Potsdamer Platz station? No, there is no simple explanation for this. What there *is*, however, is the terribly concrete symbolism of a human-like figure, six meters tall and standing upside-down. The original was carved from a single log of spruce before being cast into bronze. It is (in compressed form and in compressed words): an iconographic alarm signal. A rather expressive visual phrase that encapsulates, say, the fall of Icarus or that of Lucifer or the pain of a human tortured by the Holy Inquisition. There is a twisted motion implied here, be it cut into or a natural attribute of the roots; who can really say for sure? Without a doubt, this is the representation of naked, flayed human flesh with hyper-extended feet, arms, and hands. One might speculate about the significance of the six digits on one of the hands or the feminine mounds on the trunk. Yes, you could, if not all such speculative burrowing into symbols, forbade itself these days—following in suit with the general silence of the arts after their modern period. The six-fingered being evokes all at once the magician, the deviant, and the theoretician of the supernatural. Its nascent breasts suggest the recondite, quasi-feminine dimensions of Bruno's natural philosophy, that is, we should dare to go in such a direction. Consider the wood that was used in the draft sculpture (a carbon-based material) and think then of the ore (a copper-tin alloy) into which it was formed, embodying all of its texture. So, we have what we need: a rhetoric of fire that measures up to this man, an intimation of the language of alchemy and the metamorphoses that lent wings to the pantheist within. Bruno was certainly the most fearless and most sincere of the all the modern cosmologists. The clarity of his dialogues put an end to the game of hide-and-seek played out around the ideas of Copernicus and Kepler. Here argued someone who regarded the universe as a single continuum and who did not fear the thought of space being inconstant and infinite.

The historical figure of Giordano Bruno certainly attracts pathos. It is not entirely unjust that he has been accosted by a scientifically pious atheism. And yet, the current veneration of Bruno smacks of the same mercilessness that once characterized his condemnation. One has the urge to protect him from his false friends and backward enemies. Even the hardcore elements amongst the evolutionists, propagandists of the “God Delusion” (like the British zoologist Dawkins), have claimed Bruno as one of their own. Now that would really be too much of a shame. For the intellectual world of this man was far more cabbalistic, far more enigmatic, than a present-day reductionist could ever dream of. This philosopher flew through the world astride Pegasus; his thinking was so polymorph and yet so at odds with itself. Just as a sea urchin is spiked with spines; you can still find yourself immersed in his writings. I do not want to anticipate tomorrow’s colloquium, but I do believe that the appropriation of Bruno as the exemplification of some kind of self-assured scientism is wrong. The 109th aphorism in Friedrich Nietzsche’s book *The Gay Science* seems to convey my concern. The self-avowed admirer of Bruno, fraternally ablaze with the historical thirst for revenge for one so heinously tormented—one so cruelly driven into reclusion—aligns himself in solidarity with the consequences of such thinking, when he cries: “Let us be on our guard against thinking that the world is a living being. Where could it extend itself? [...] Let us be on our guard against supposing that anything so methodical as the cyclic motions of our neighbouring stars obtains generally and throughout the universe; indeed a glance at the Milky Way induces doubt as to whether there are not many cruder and more contradictory motions there. The general character of the world, on the other hand, is to all eternity chaos ... Let us be on our guard against saying that there are laws in nature.” This is the raw external world that Bruno (one of the first), sensed breaking through the welkin. This is prose that recalls his brutal, literally exorbitant, cosmology. This Giordano Bruno—and no artistic assault will change it—was an uncompromising astro-anarchist, a Pre-Socratic strayed into the Middle Ages, a Dionysian in a monk’s cowl. It is no surprise, then, that people living in such a time of great uncertainty about faith regarded him as an intellectual monstrosity, as the “Prince of the Heretics.” Even if he did touch one of the church’s raw nerves with his questioning of the orthodox doctrine of creation and with his diatribes against Jesus Christ and the Holy Trinity (something we can live with today, being incensed by the cruelty of the judicial murder). The files are in the archives, but his case is not closed. While Galileo has recently been rehabilitated, Bruno remains a taboo in the Vatican. There, the view seems to reign that he was someone

who deserved his fate and that it was his own doing that he ended up on the wheel where they ripped his arms out of his limbs and bound him naked to a stake. (Perhaps you will indulge me as I give an account of his appearance, according to one text: A man of medium build with chestnut blond beard.)

Bruno was also a sublime Orphist, who wrote comedies and sonnets and intoxicated himself on the music of the written word. Artists throughout time have always sensed this and, subsequently, have always felt an affinity to him. Schopenhauer, who saw in him the Buddhist, called him a tropical plant in Europe. I have mentioned before the indifference towards the extraordinary—the solitude of the victim. Bruno's death depicts both the immediate proximity of heroic greatness and ordinary ignorance. It was as if some of that cold from outer space had found its way into the crowd, whose members calmly went about their business while, in their midst, a man was burnt alive. There is a poem by the Nobel Prize laureate Czesław Miłosz, entitled *Campo di Fiori*, that expresses this bitter experience, expresses it so exactly that one would like to have written the poem oneself. How fitting, then, that the Berlin monument to Giordano Bruno will stand at the entrance to a metro station, beneath the security cameras; for what other place with its big-city neutrality and its social coldness could better bear testimony to such a pitiless juxtaposition.

ALEXANDER POLZIN

Giordano Bruno

Height of the sculpture: Circa seven meters

Commissioned in 2000 by Central European University (CEU) on the occasion of George Soros's 70th birthday, Alexander Polzin's work commemorates the 400th anniversary of Giordano Bruno's death.

There are three installations:

The Bronze Cast I at the CEU dormitory in Budapest (Hungary, 2001).

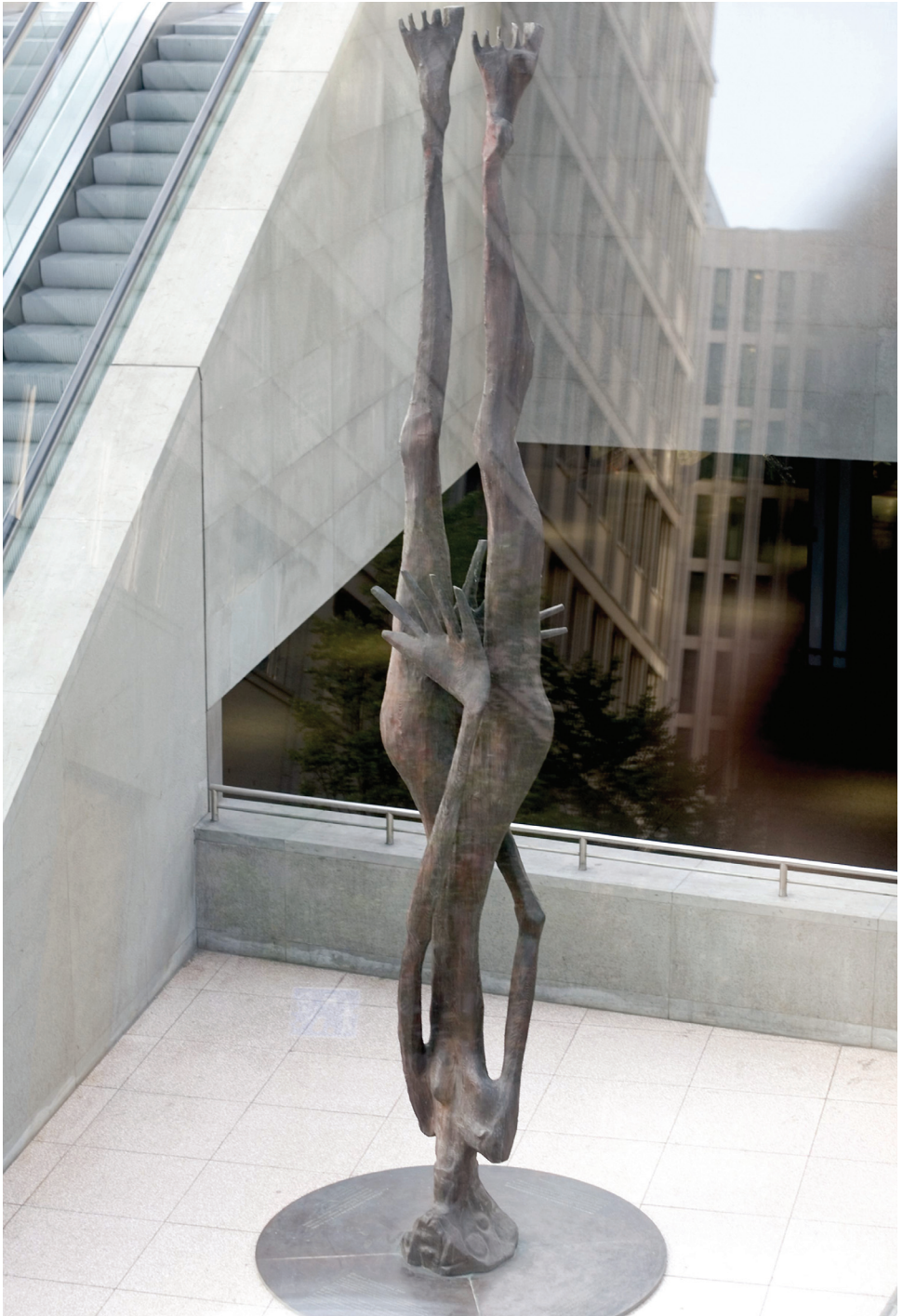
The Bronze Cast II installed by Deutsche Bahn at Potsdamer Platz in Berlin (Germany, 2008. Photo: Norbert Banik).

The wood sculpture in Nola (Italy, 2003. Photo: Klaus Schuwerk).

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Alexander Polzin, *Giordano Bruno*, the Bronze Cast I
at the CEU dormitory in Budapest (detail)



Alexander Polzin, *Giordano Bruno*, the Bronze Cast II
installed by Deutsche Bahn at Potsdamer Platz in Berlin



Alexander Polzin, *Giordano Bruno*, wood sculpture, Nola (detail)

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Giordano Bruno: A non-conformist at the dawn of an epoch, a martyr of modernity, or just a polemic controvert? Descriptions of this kind fall short of grasping the multifold character of “the Nolan.” Deconstructing the relationship between God and the outside world gave distinction to his life—and his refusal to recant when facing the stake somehow set him apart from the world. Since then, the debate about the Nolan has been dominated by the interest in the comprehensive oeuvre of the philosopher, and by attempts to make him a protagonist of the freedom of thought.

This volume brings together some of the most eminent researchers to have worked on Giordano Bruno and his epoch. In order to bring into focus the horizon and the dimensions of his transformation of traditions, to demonstrate how he turned contemporary thinking upside down, and to delineate his persuasive strategies, as well as the theoretical consequences of his thought, the contributions all start from an exemplary passage drawn from Bruno’s great range of work or from texts close to his person and oeuvre. Presenting and elucidating pivotal points of the *philosophia nolana*, the essays both invite readers to become acquainted with Bruno’s philosophy and provide them with innovative dissections, interpretations and conceptual reflections that will prepare the way for a revised reading of Bruno’s works. They reconstruct his deconstruction and rearrangement of philosophical systems, his understanding of nature and the cosmos, his methods of thinking and writing, his aesthetic and literary categories. They explore the topics and *modi operandi* of the great Renaissance thinker and point out the variance of his reception up to the present, both inside and outside academia, exhibiting the ever-changing relevance and continuing fascination of Bruno’s work.

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